EFFECTIVENESS OF PEPPERMINT AROMATHERAPY UPON LABOUR PAIN AND COPING AMONG PARTURIENT MOTHERS

By

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A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

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DECLARATION

I hereby declare that the present dissertation entitled "**Effectiveness of Peppermint aromatherapy upon labour pain and coping among parturient mothers"** is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr. Latha Venkatesan.,** M.Sc (N)., M.Phil(N)., Ph.D(N),MBA, Principal, Apollo College of Nursing and **Mrs. Lizy Sonia.A**., M.Sc (N)., Ph.D (N).,Vice principal and professor, Head of the department in Medical Surgical Nursing, Apollo College of Nursing, Chennai.

I also declare that the material of this has not formed in anyway, the basis for the award of any degree or diploma in this University or any other Universities.

M.Sc (N) II Year

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"Feeling gratitude and not expressing it, is like wrapping a present and not giving it"

- William Arthur

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SYNOPSIS

An experimental study to assess the effectiveness of aromatherapy upon first stage labour pain, and coping among Primi parturient mothers at selected hospital, Chennai.

Objectives of the Study

The objectives of the study are

Primary objectives

1. To assess the level of labour pain and coping before and after peppermint aromatherapy among control and experimental group of primi parturient mothers.
2. To assess the effectiveness of aromatherapy upon first stage labour pain, and coping among Primi parturient mothers
3. To determine the level of satisfaction upon peppermint aroma therapy among experimental group of primiparturient mothers.
4. To find out the association between the selected demographic variables and the level of labour pain, coping before and after therapy in the control and experimental group primiparturient mothers.
5. To find out the association between the selected obstetrical variables and the level of labour pain, coping before and after pepper mint aroma therapy in control and experimental group of primiparturient mothers

Secondary objectives

1. To assess the fetomaternal parameters before and after peppermint aromatherapy among control and experimental group of primi parturient mothers.
2. To compare the fetomaternal parameter among control and experimental group of primi parturient mothers before and after peppermint aromatherapy.

The conceptual framework setup for the study was Swanson's Caring theory. The variables of the study were aromatherapy, Labour pain and Coping. Null hypotheses were formulated. An extensive review of literature was made based on the opinions of the experts. An experimental study of Time series with multiple institution of treatment design was used. The study included 60 parturient mothers who were selected by Simple random sampling. The study was conducted at Andhra Mahila Sabha Hospitals, Chennai.

Demographic variable Proforma, Obstetric variable proforma, Visual Pain Analogue scale, Pain Coping Scale, Rating Scale on Satisfaction of peppermint aromatherapy and Modified WHO Partograph were the various tools used by the researcher. The validity was obtained from various experts and reliability was established. The main study was conducted after the pilot study.

The level of Labour pain, Coping and Feto-maternal parameters were assessed for the Control and Experimental group of parturient mothers. The peppermint aromatherapy provided for every 30minutes in the Experimental group till the first stage of labour is completed. Then the level of labour pain, coping and feto-maternal parameters were assessed for both the groups. The level of

satisfaction on peppermint aromatherapy was assessed among the experimental group of parturient mothers after the labour. The data obtained were analyzed using Descriptive and Inferential statistics. Descriptive Statistics such as Mean, Median and Standard deviation. Inferential statistics such as Chi- Square and paired "t" test.

Major Findings of the Study

- The parturient mothers in both the control and experimental group were in the age group of 21 -25 years (53.33%, 60%), resided in sub urban areas (53.33%, 53.33%), majority of them belonging to nuclear family (73.3%, 86.66%) and none of them received information regarding peppermint aromatherapy previously.
- The mothers were between 39 – 40 weeks of gestation in both control and experimental group (43.33%, 63.33%) during delivery. All of them attended more than four antenatal visits and APGAR score of newborn at birth were between 7-10 for both control and experimental group.
- Majority of the women were able to do 3 R's (Rhythm, Ritual and Relaxation) (90%, 86.7%) before therapy and significant percentage of them were able to do 3 R's (6.66%, 40%) after therapy in both control and experimental group respectively.
- The Mean pain level was high after therapy (M=5.8, SD=0.88) compared to before therapy (M=4, S.D=1.17) in control group whereas the mean pain level was low (M=3.8, SD=0.60) after therapy compared to before therapy (M=3.8, SD=0.60) in experimental group. Hence null hypothesis Ho1 "There will be no significant relationship between the level of labour pain, coping feto maternal parameters and aroma therapy in control and

experimental group of parturient mothers" was rejected.

- The Mean coping level was low after therapy (M=2.00, SD=0.87) in comparison with before therapy (M=4.2, SD=0.94) in control group and the mean coping level was high after therapy (M=4.3, SD=0.69) in comparison with before therapy (M=3.3, SD=0.60) in experimental group. Hence null hypothesis Ho1 "There will be no significant relationship between the level of labour pain, coping feto maternal parameters and aroma therapy in control and experimental group of parturient mothers" was rejected.
- The cervical dilatation and uterine contraction were increased after therapy in comparison with before therapy for experimental group (M=4, SD=0; M=6, SD=0), (M=2.5,SD=0.50; M=3.9, SD=0.11) and control group (M=4,SD=0; M=6, SD=0), (M=3 SD=0; M=4, SD=0) of parturient mothers which shows that peppermint aromatherapy was not having any adverse effects over uterine contractions and cervical dilatation.
- The Majority of the parturient mother in Experimental group were highly satisfied (86.66%) with the peppermint aromatherapy and none of them reported dissatisfaction towards the intervention. In both the Control and Experimental group of parturient mothers, no significant association was found between Demographic variables and the level of labour pain perception which proves that Demographic variables has no influence over the pain perception. Hence some type of pain relief methods are essential for the women to reduce the pain.
- Similarly No association was found between Demographic variables and the level of coping in both the Control and Experimental group of parturient mothers which means that Demographic variables may not influence the

coping level of the women and hence it is the responsibility of the nurse midwife to help the mother in coping with the labour pain.

- There was no significant association between Obstetric variables such as gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second, third stage of labour and APGAR score of newborn at birth with the level of labour pain after peppermint aromatherapy in the control and experimental group(P>0.05) Hence null hypothesis Ho3 "There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.
- There was no significant association between Obstetric variables such as gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second ,third stage of labour and APGAR score of newborn at birth with the level of coping after peppermint aromatherapy in the control and experimental group(P>0.05) Hence null hypothesis Ho3"There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.
- The above study findings reveled that peppermint aromatherapy used by the researcher to reduce the level of pain perception in parturient mothers was found to be effective.

Recommendations

- The same study can be conducted with large number of samples.
- A comparison can be made between primi and multigravid women.
- A comparison can be made with different stages of labour.
- The same study can be conducted at different setting.
- A comparison can be made between different types of alternative and complementary therapies.

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CHAPTER I

INTRODUCTION

Background of the study

"Enable every woman who can work to take her place on the labor front, Under the principle of equal pay for equal work".

Mao Tse-Tung quotes

Pregnancy is the period of gestation from the fertilization of an egg, through development of a fetus, and ending at birth. A woman's desire for, and choice of, pain relief during labour are influenced by many factors, including her expectations, the complexity of her labour and the severity of her pain**.**

An average birth rate for the whole world in the year 2008 was 19.95. There are approximately 6 million births in United States every year. In India 128.9 million births occur per year. The birth rate in Tamil Nadu and Chennai in the year 2009 was 16.3births and 15.3 births respectively .All the women who give birth to a baby necessitate some type of pain relief methods (department of health and family welfare, 2009).

To many women the pain of labour is significant and the majority require some form of pain relief. Flexible expectations and being prepared for labour may influence her psychological wellbeing after birth. Extreme pain can result in psychological trauma for some women, while for others undesirable side effects of analgesia can be affect the birth experience. During child birth, women are perhaps more vulnerable at any time in their life .It is time for a child to be born. The parents are about to undergo one of the most meaning full and stressful events of their lives. Pain during labour is unique, which is unpleasant, complex, highly

individualized phenomena with both sensory and emotional component. (Lowe,2002).

In United Kingdom, an evaluative study was conducted by Simkin.M. et al., (2000) .The principal aim of the study was to examine the contribution or aromatherapy to the promotion of maternal comfort during labour and as a tool to improve the quality of midwifery care. More than 50% of mothers rated it as helpful ,and only 14% found it unhelpful .Sixty percent of the sample were primigravidae, and 32% overall had their labour induced. The administration of aromatherapy in childbirth did appear to reduce the need for additional pain relief in a proportion of mothers. More than 8% of primigraviae and 18% of multigravidas used no conventional pain relief during labour after using essential oils. The study also showed that aromatherapy may have the potential to augment labour contraction for women in dysfunctional labour.This study represents a successful example of the integration of a complementary therapy into mainstream midwifery practice and forms a basis for future research.

According to Hanson et al.(2001) the labour process is an exciting and anxious time for the women and her significant others. They experience one of the most profound changes in their lives. For most women, labour begins with the first uterine contraction with hours of hard work during cervical dilatation and birth ends as the women and family begins the attachment process with the infant.

Need for the study

Pregnancy is a special time in women life. Most women give birth without complications. Pregnancy, childbirth hand motherhood are times when a woman undergoes a vast change in her body and it can be termed as an entirely new birth for the woman or as a time of rebirth. With changing times the process of birth has also modernized with less complication but then certain things don't change at all. But we become more capable of handling any complexities of child birth. Pregnancy and childbirth are wonderful and remarkable moments. Childbirth is a special event in a women's life and she cherishes these movements all through her life.

"Pain in labour is a purposeful, useful thing, which has quite a number of benefits, such as preparing a mother for the responsibility of nurturing a newborn baby." The management of labor pain is a major goal of intra-partum care. There are two general approaches: pharmacologic and non-pharmacologic. Pharmacologic approaches are directed at eliminating the physical sensation of labor pain, whereas non-pharmacologic approaches are largely directed at prevention of suffering. Suffering may be defined in terms of any of the following psychological elements: a perceived threat to the body and/or psyche; helplessness and loss of control; distress; insufficient resources for coping with the distressing situation; fear of death of the mother or baby. Although pain and suffering often occur together, one may suffer without pain or have pain without suffering.

Most women use non-pharmacologic approaches for managing labor pain, with or without pharmacologic approaches. The non-pharmacologic approach to pain management includes a wide variety of techniques that address not only the

physical sensations of pain, but also attempt to prevent suffering by enhancing the psycho-emotional and spiritual components of care. In this approach, pain is perceived as a normal accompaniment of most labors. Her caregivers and support people also help her by providing reassurance, guidance, encouragement, and unconditional acceptance of her coping style. By taking an active role in decision-making and receiving appropriate support, women are more likely to be able to transcend their pain and experience a sense of mastery, control, and well-being, factors associated with their ability to cope with labour.

Levins et al (1998) conducted a large uncontrolled prospective study reported on the use and effectiveness of aromatherapy in a large referral maternity in uk.8058 women received aromatherapy during labour under the supervision of midwives trained in aroma therapy. It was used for a variety of purposes like to reduce fear, anxiety, and pain, to reduce nausea or vomiting to enhance women's sense of wellbeing and to improve contractions.31% of the women received aromatherapy lavender, rose or frankincense to relieve anxiety and fear .51% of mothers and midwives found it unhelpful. Rose oil was rated helpful by most 71% followed by lavender 50%.Havender and frankincense were used for pain by 537 women of whom 54% found lavender helpful and 60% found frankincense helpful .Aromatherapy is inexpensive and popular with laboring women and midwives.

In 2004, Giti ozgoli conducted an experimental study by using aromatherapy with peppermint there was decreased intensity of pain in intervention group compare to control group. As midwife we must encourage the mother for natural childbirth by providing them measures to cope with labour pain

.Among pain relieving measures, non-pharmacological methods are safe during labour without any side effects. Aromatherapy with peppermint is one of the inexpensive easy to administer during first stage of labor pain. Hence the researcher would like to transform the first stage labor pain as delightful experience for primi parturient mothers life.

Statement of the problem

An experimental study to assess the effectiveness of aromatherapy upon first stage labour pain, and coping among Primi parturient mothers at selected hospital, Chennai.

Objectives of the study

Primary objectives

1. To assess the level of labour pain and coping before and after peppermint aromatherapy among control and experimental group of primi parturient mothers.
2. To assess the effectiveness of aromatherapy upon first stage labour pain, and coping among Primi parturient mothers
3. To determine the level of satisfaction upon peppermint aroma therapy among experimental group of primiparturient mothers.
4. To find out the association between the selected demographic variables and the level of labour pain, coping before and after therapy in the control and experimental group primiparturient mothers.

5. To find out the association between the selected obstetrical variables and the level of labour pain, coping before and after pepper mint aroma therapy in control and experimental group of primiparturient mothers

Secondary objectives

1. To assess the fetomaternal parameters before and after peppermint aromatherapy among control and experimental group of primi parturient mothers.
2. To compare the fetomaternal parameter among control and experimental group of primi parturient mothers before and after peppermint aromatherapy.

Operational definitions

Effectiveness

In this study effectiveness refers to the outcome of peppermint aroma therapy as measured in terms of level of pain, coping and feto maternal parameters of primi parturient mothers before and after the peppermint aromatherapy.

Aromatherapy

In this study it means mixtures containing 0.2ml essence of peppermint and 2ml normal saline impregnated gauze, were attached to their dress collar, and the administration was repeated every 30 minutes till the completion of first stage of labour.

First stage of labour pain;

According to this study it is the pain experienced by the primi parturient mothers during the first stage of labour from 4cm-5cm dilatation.

Coping

According to this study it is the level of coping adopted by the parturient mothers during the first stage of Labour as measured by coping scale.

Feto – maternal parameters:

The mothers pulse rate, blood pressure, cervical dilatation, frequency and duration of uterine contractions, duration of labour and the fetal heart rate were the feto maternal parameters assessed in control and experimental group before and after therapy.

Primiparturient mothers:

A women pregnant for first time without any complication, is admitted for normal vaginal delivery in the first stage of labour.

Assumptions

The study assumes that,

- Every pregnancy is a unique experience for the woman.
- Pain in labour is universal and progressive in nature
- Majority of women need some sort of pain relief during child birth
- The alleviation of pain is important.
- Non pharmacological measures are simple ,safe and inexpensive
- Peppermint aroma therapy stimulates the energy flow thus reducing the pain perception

Null hypothesis

Ho1 There will be no significant relationship between the level of labour pain, coping feto maternal parameters and aroma therapy in control and experimental group of parturient mothers.

Ho2 There will be no significant association between selected demographic variables and level of labour pain, coping before and after aroma therapy in control and experimental group of parturient mothers.

Ho3 There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers.

Delimitations

The study is limited to parturient mothers who were

- willing to participate.
- in first stage of Labour having contractions with 4 – 5cm of cervical dilatation.
- able to understand and speak Tamil or English.
- admitted for Labour process during data collection period.
- not having any complication during pregnancy

Conceptual Framework

Conceptual framework is an interrelated concepts or abstractions that are assembled together in some rational schemes by virtue of their relevance to a common theme (Polit, 2010).

Swanson's caring theory was used as conceptual framework for this study to describe the relationship and focus of the study which includes knowing, being with, doing for, enabling and maintaining belief through which interaction can be improved and maintained between the Nurse researcher and the parturient mothers.

Swanson's theory was used in this study as it explains about knowing of the parturient mothers by the nurse researcher, to be with the women during Labour, to do interventions for the mother as needed, to enable the mother to maintain her health and to maintain belief of the parturient mothers. The components of this theory are as follows.

Knowing

This is a striving to understand an event as it has meaning in the life of the other. Here the need of the parturient mothers which is difficulty in coping with pain is understood by the researcher.

Being with

Being with means being emotionally present with the other. Thus the nurse researcher was emotionally present with the mother and provided psychological support.

Doing For

This refers to doing for the others as she would do for the self if it were all possible. Here the intervention of peppermint aromatherapy is provided for the mother in order to help her in having decreased pain perception and increased coping with the Labour pain which she was unable to do on her own.

Enabling

Enabling is facilitating the others to pass through life transitions and unfamiliar events. Here the researcher facilitates the parturient mother to cope with the pain and to pass through the active phase of Labour.

Maintaining Belief

This is sustaining faith in others capacity. Here the belief of achieving pain coping with peppermint aromatherapy was maintained among the parturient mothers.

Feedback

The outcome may either be satisfactory or non – satisfactory in reducing pain perception. If the pain perception is reduced it means that the therapy was effective and if not reduced, it needs rearrangement of the therapy.

Researcher used this theory as it was found appropriate to assess the effectiveness of peppermint aromatherapy during the active phase of first stage of Labour among the parturient mothers.

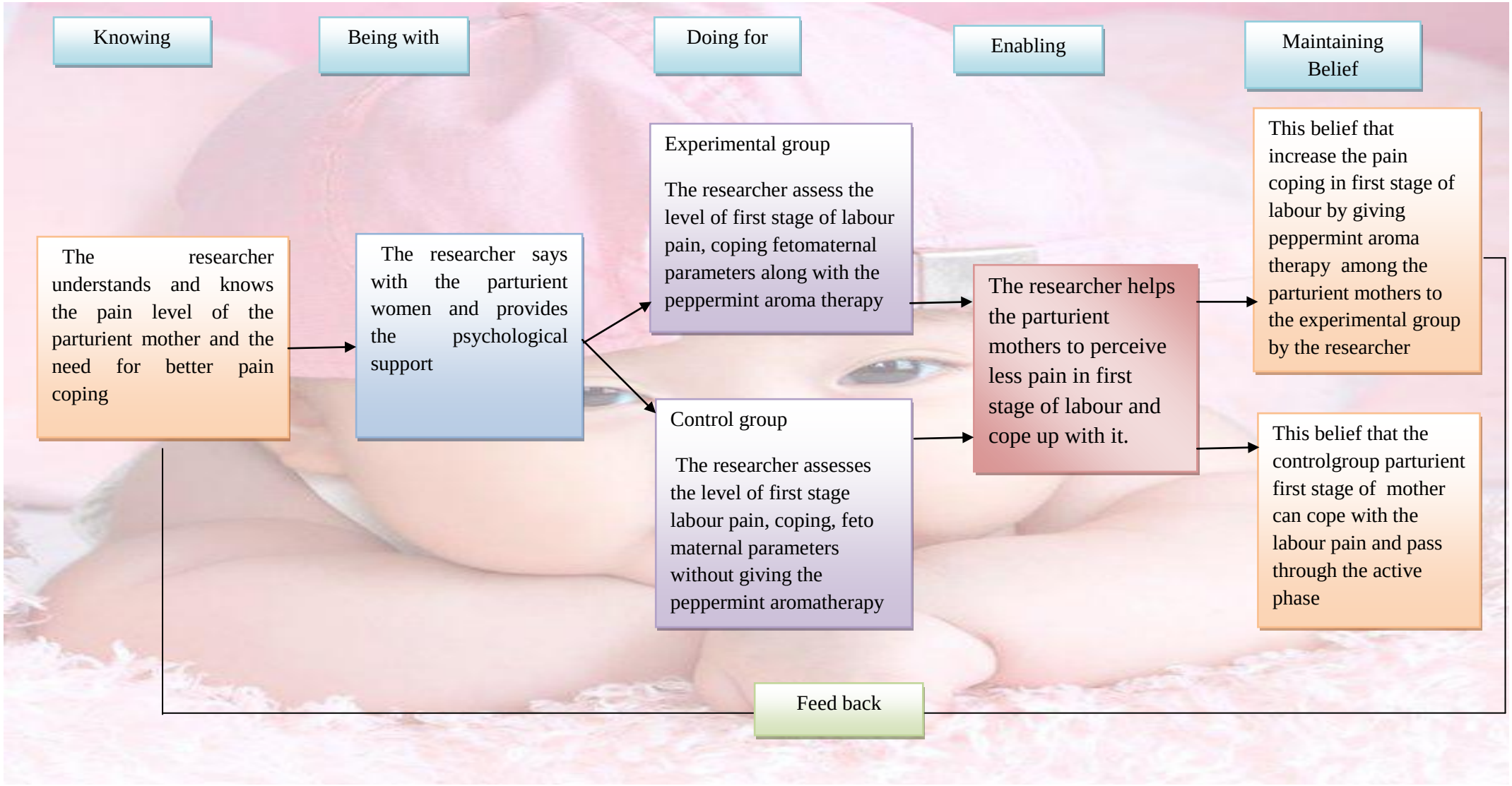

Fig 1.Conceptual Framework based on swansons caring theory

Projected Outcome

The study projects that peppermint aromatherapy will be useful to reduce the level of Labour pain and increases coping among the parturient mothers.

Summary

This chapter has dealt with background of the study, need for the study, statement of the problem, objectives of the study, operational definitions, assumptions, null hypotheses, delimitations and conceptual framework.

Organization of the Report

Further aspects of the study are presented in the following chapters.

Chapter – II : Review of literature.

Chapter –III : Research methodology which includes research approach, research design, research setting, population, sampling, sampling criteria and development of analysis and research instrument.

Chapter – IV : Analysis and interpretation of data is presented in terms of Descriptive and Inferential statistics.

Chapter – V : Discussion.

Chapter –VI : Summary, Conclusion, Implications, Recommendation & Limitations are presented.

CHAPTER II

REVIEW OF LITERATURE

A literature involves the systematic identification, location, scrutiny and summary of written materials that contain information on the research problem (Polit and Hungler 2012).

Review of Literature Conducting a literature review is a little bit doing a full-fledged study. According to nursing research by (Polit and Beck, 2012), 'Review of literature is a written summary of the state of evidence on a research problem.'

The review of literature in this chapter has been presented under the following headings.

- Literature related to non pharmacological methods of pain relief during Labour
- Literature related to pharmacological methods of pain relief in first stage of Labour
- Literature related to aromatherapy on Labour pain and coping in first stage of labour pain

Literature related to Non Pharmacological Methods of Pain Relief during Labour

Hosseini et.al (2013) conducted a study to investigate the effects of music-therapy on Labour pain and progress in parturient primipara. The subjects of this research were 30 women, selected voluntarily and they were put in to Experimental and Control group. This research has been conducted in the form of

15 pre-test and post-test design. The Experimental group listened to a relaxing music for 30 minutes in each hour for a two-hour period and the Control group was not exposed to music during this period. The pain scales (verbal, numeric and visual) was used to measure pain. The independent variable in this research was relaxing music and the dependent variables were the pain level and delivery progress. Results show that Music-therapy during Labour increases tolerance to pain and decreases anxiety, it also increases parturition and uterus activity and there by shortens the Labour duration.

Hamidzadeh, et al (2012) conducted a randomized Controlled trial of 100 parturient women to evaluate the effects of LI4 acupressure on Labour pain in the first stage of Labour, on Labour duration, and on patient satisfaction. There were significant differences between the groups in subjective labor pain scores immediately and 20, 60, and 120 minutes after intervention. Active phase duration (3-4 cm dilatation to full dilatation) and second stage duration (full dilatation to birth) were shorter in the acupressure group. The women in the acupressure group reported greater satisfaction.LI4 acupressure was effective at decreasing pain and duration of Labour. The participants were satisfied, and no adverse effects were noted.

In 2009,Da Silva, et.al. Conducted a randomized Controlled trial evaluating the effect of immersion bath on Labour pain. 108 birthing women, with 54 women randomly assigned to each group. When the birthing women presented at 6-7 cm of cervical dilation, they were placed in an immersion bath for 60 minutes. Pain scores, using a behavioural pain scale and a numeric scale, were 16 recorded at two evaluation time points: at 6-7 cm of cervical dilation and 1hour

after the first pain score evaluation. The findings suggest that use of an immersion bath is a suitable alternative form of pain relief for women during Labour.

In 2007, Walker conducted a comparative study on the relationship between method of pain management during Labour and birth outcomes. She had provided narcotic analgesics along with antenatal education, breathing and relaxation techniques, and hydrotherapy have been found to promote relaxation, increase comfort, and provide pain relief in Labour. Narcotics analgesics have been found to decrease pain although the short and long-term effects of respiratory depression may increase the risk to the newborn.

In 2007 Burns et.al conducted a Randomized Controlled study on aromatherapy for pain management in Labour. Two hundred and fifty-one women randomized to aromatherapy and 262 Controls in a district general maternity unit in Italy. There was no significant difference for the following outcomes first stage augmentation and second stage augmentation. Significantly more babies born to Control participants were transferred to NICU. However pain perception was reduced in aromatherapy group for nulliparae.

Skiland et. al.(2002) conducted a Controlled single blind study with 210 healthy parturient in spontaneous, active Labour at term were randomly assigned to receive either real acupunctureor false acupuncture. Visual analog scale assessments were used to evaluate subjective effect on pain. The objective parameter of outcome was the need for analgesic medication in each group. The 17 results indicate that acupuncture reduces the experience of pain in Labour. Acupuncture may be useful for parturients who wish a non pharmacological analgesia without side-effects.

Cheryl et al. (2002) conducted a pilot study of acupressure massage on women in Labour when given by their birth partners which revealed that women whose partners had completed anacupressure massage workshop had a higher rate of spontaneous vaginal delivery and lower rate of caesarean section, and they averaged a much shorter length of Labour. The project also found that women largely felt that acupressure delayed their need for other analgesia and that it was positively helpful in Labour, and both women and birth partners felt much higher levels of birth satisfaction.

Literature Related to Pharmacological Methods of Pain Relief during Labour

Tveit To et.al in 2013 conducted a study by collecting the updated information about pharmacological Labour analgesia in Norway, especially systemic opioids and epidural. Evaluation of efficacy and safety with remifentanil intravenous patient-Controlled analgesia (IVPCA) for pain relief during Labour. To compare remifentanil IVPCA with epidural analgesia (EDA) regarding efficacy and safety during Labour. The studies on remifentanil IVPCA revealed adequatepain relief, high maternal satisfaction, and no serious neonatal side effects. There were no differences in analgesic efficacy, maternal satisfaction, and neonatal outcome when comparing remifentanil IVPCA with EDA. However, remifentanil caused maternal sedation and oxygen desaturation. We recommend the use of IVPCA remifentanil as Labour analgesia instead of traditional opioids 18 as pethidine and morphine when EDA is not an option. The presence of skilled personnel and close monitoring is mandatory.

Gambling, et.al. (2013) conducted a randomized Controlled comparison of epidural analgesia and combined spinal and epidural analgesia. Data from 398

epidural and 402 Combined spinal and epidural subjects were analyzed. The study concluded that Compared with traditional epidural Labour analgesia, Combined spinal and epidural analgesia provided better first-stage analgesia despite fewer epidural top-up injections by an anesthesiologist.

In 2012, Werner et.al. conducted a randomized Controlled trial to estimate the use of epidural analgesia and experienced pain during childbirth after a short antenatal training course in self-hypnosis to ease childbirth. A total of 1222 healthy nulliparous women. In this large randomised Controlled trial of a brief course in self-hypnosis to ease childbirth, no differences in use of epidural analgesia or pain experience were found across study groups.

In 2012 Klomp et.al conducted a study to examine the effects of all modalities of inhaled analgesia on the mother and the newborn for mothers who planned to have a vaginal delivery. They searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 January 2012), ClinicalTrials.gov, and Current Controlled Trials (2 June 2012), hand searched conference proceedings from the American Society of Clinical Anesthesia (from 1990 to 2011), contacted content experts and trialists and searched reference lists of retrieved studies. Inhaled analgesia appears to be effective in reducing pain intensity and in 19 giving pain relief in Labour. However, substantial heterogeneity was detected for pain intensity. Furthermore, nitrous oxide appears to result in more side effects compared with flurane derivatives. Flurane derivatives result in more drowsiness when compared with nitrous oxide. When inhaled analgesia is compared with no treatment or placebo, nitrous oxide appears to result in even more side effects such as nausea, vomiting, dizziness and drowsiness. There is no evidence for

differences for any of the outcomes comparing one strength verus a different strength of inhaled analgesia, comparing different delivery systems or comparing inhaled analgesia with TENS.

Literature Related to Aroma Therapy on Labour Pain and Coping

A Journal on alternative and complimentary medicine (2010), Kathryn. conducted a cross sectional study to explore the effect of aromatherapy on labour pain among parturient mother. The study was a randomized placebo-control trail. The sample size was 67 primi parturient mother. The visual analogue scale was used to assess their pain level with a verbal multidimensional scoring system. The labour pain were significantly lowered in the aromatherapy group than in the other groups at both post test points. The findings suggest that aromatherapy using is effective in decreasing the severity of labour pain. Aromatherapy can be offered as part of the nursing care to women experiencing labour pain.

In 2009 Jenifer et.al conducted a research to evaluate the effects of Aromatherapy, on the progress of post-term Labour and deliveries. Results revealed that Post-term women who used aromatherapy were significantly more likely to Labour spontaneously than those who did not. post term mothers who had used aromatherapy, 17% more went into spontaneous Labour compared to those who were not taught Aroma therapy. There were only limited studies related to Aromatherapy to support the study.

According to Alai (2003), the most frequently used treatment in labor induction and in increasing the frequency and duration of uterine contractions. Moreover, the authors' experience indicates that can be helpful in accelerating the

dilation of the cervix: the treatment is effective in about 75% of patients.The studies on the use of aromatherapy to achieve pain relief and analgesia during labor are more controversial, mainly due to the great heterogeneity of applied treatments and some methodological biases. Never the less, the general evidence seems to be positive also for this application.

Summary

This chapter deals with the review of literature related to the problem stated. The literatures were taken from the 17 primary sources. It helped the researcher to develop tools, and data collection, organization and analyzation of the data.

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with the methodology used by the researcher in this study which includes research approach, research design, setting of the study, population, sample, sampling technique, sampling criteria, selection and development of the tools, psychometric properties of the tools, pilot study, data collection procedure and plan for data analysis.

Research approach

Research approach is the most significant part of any research .The appropriate choice of research approach depends on the purpose of the research study for which it is under taken. In this study True experimental design will be used.

Research design

The research design is the plan, structure and strategy of investigation of answering the research question .It is the overall plan or blue print to the researchers to select and to carry out the study.

Time series with multiple institution of treatment

R O1-O2, O3-O4, O5-O6……013-O14

R O1 x O2, O3 x O4, O5 x O6…….O13 x O14

R Randomization

O1, O3, O5,O7,O9,O13 - Assessment before peppermint aroma therapy

X - Administration of peppermint aroma therapy for 30 minutes

O2,O4,O6,O8,O10,O14 - Assessment after peppermint aroma therapy

Variables

Variable is an attribute that varies. And it takes on different values (Polit and Beck, 2012).

Independent variable

The variable that is believed to cause or influence the dependent variable is called independent variable. In this study Aroma therapy is the independent variable. Aroma therapy is provided for every 10 minutes to assess the pain level and coping level of parturient mothers.

Dependent variable

The variable hypothesized to depend on or be caused by independent variable is the dependent variable. Labour pain is the dependent variable in this study. The level of Labour pain is assessed during the cervical dilatations of 4-5cm, 6-7 cm, 8-10 cm after Aroma therapy.

Extraneous variables

A variable that confounds the relationship between the independent and dependent variables and that needs to be Controlled either in the research design or through statistical procedures is the extraneous variables. Demographic variables and Obstetric variables were extraneous variables in this study.

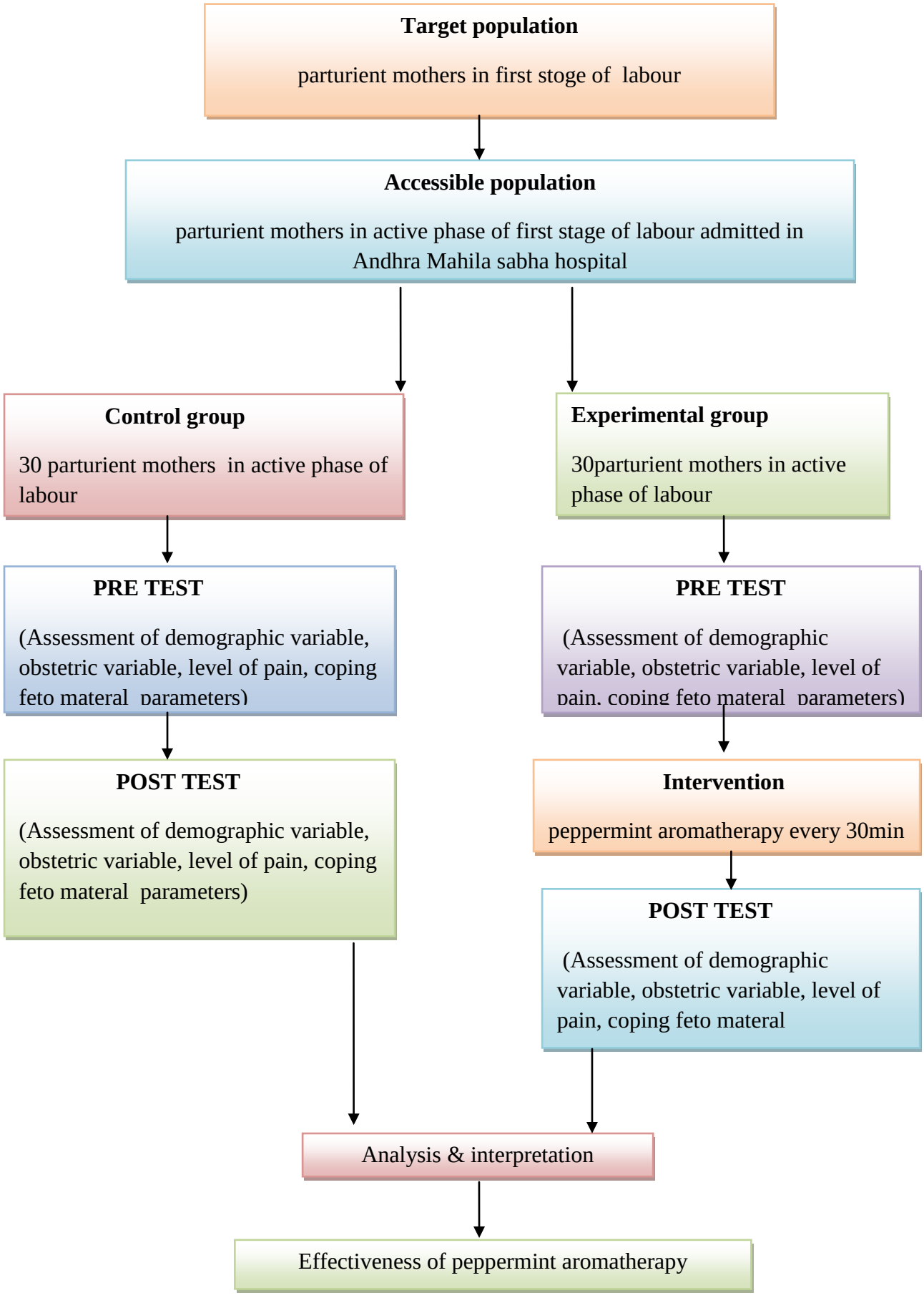

Fig.2 Schematic Representation of the Research Design

Research Setting

The study was conducted at Andhra Mahila Sabha hospital located at Adayar which is a semi-urban area of Chennai. The hospital is 200 bedded which has Labour room with four Labour table and equipments like Cardiotocography machine, warmer and life saving drugs and equipments for Obstetric and Medical Emergencies. On an average 90 – 120 parturient mothers undergo normal vaginal delivery every month. The hospital also has postnatal ward, post operative ward, NICU, operation theatre, laboratory and other diagnostic facilities like scanning. They also provide Immunization and conduct teaching programmes for the staff and the patients and do referral to government agencies in need.

Population

Population is the entire set of individuals or objects having some common characteristics (Polit and Beck, 2012). The target population is the entire population in which a researcher is interested and to which he or she would like to generalize the study results. In this study the target population was all the parturient women in the active phase of first stage of Labour with the cervical dilatation of 4 – 10cm. The accessible population is the aggregate of cases that confirm to designated criteria and that are accessible as subjects for a study. In this study the accessible population was all the parturient mother who were in the first stage of Labour admitted at Andhra Mahila Sabha Hospital, Chennai.

Sample

According to Polit and Beck (2012) sample is a subset of population elements. A sample of 60 parturient mothers in the active phase of first stage of Labour was selected among which 30 parturient women were randomly assigned to the Control group and 30 parturient mothers were assigned to the Experimental group.

Sampling Technique

Sampling is the process of selecting a portion of the population to represent the entire population so that inferences about the population can be made (Polit and Beck 2012). Simple random sampling was used in this study to select the mothers who satisfy the inclusion criteria, where the odd number parturient mothers were assigned to Control group and the even number parturient mothers were assigned to the Experimental group.

Sampling Criteria

Inclusion criteria

Study included primiparturient mothers who:

- were hospitalized in Andhra Mahila Sabha Hospital ,Chennai.
- willing to participate in the study.
- had contractions with 4 – 10 cm of cervical dilatation.
- could understand and speak Tamil or English.
- got admitted during data collection period
- Were between 37-42 weeks of gestations.

Exclusion criteria

The study excluded

- High risk mothers.
- Mothers who will not be in labour.
- Mothers who are not willing to participate in the study.
- Mothers who can't understand and speak Tamil or English**.**

Selection and Development of Study Instruments

The instruments for this study were developed to evaluate the effectiveness of Aromatherapy upon Labour pain and coping through extensive review of literature. The instruments used in this study were Demographic variable proforma, Obstetric variable proforma, visual pain analogue scale, pain coping scale, modified WHO partograph and rating scale on satisfaction of Aromatherapy upon Labour pain.

Demographic variable Proforma

The Demographic variable proforma consists of age, educational status, occupation, and monthly income, religion, type of family and area of residence.

Obstetric variable Proforma

The Obstetric variable proforma consists of gravida, parity, gestational age in weeks, number of antenatal visits attended till date, maternal complication during Labour and fetal complication during Labour, duration of first, second and third stage of Labour, APGAR score of the baby.

Visual pain analogue scale

Visual pain analogue scale was used to assess the level of Labour pain during the active phase of first stage of Labour in parturient mother before and after Aromatherapy.

Pain coping scale

Pain coping scale was used to assess the pain coping level of the parturient mother before and after Aromatherapy during first stage of Labour.

Modified WHO Partograph

This graph consists of fetal heart rate, maternal blood pressure, cervical dilatation, frequency and duration of uterine contraction. Rating scale on satisfaction of Aromatherapy upon Labour pain. This scale was designed by the researcher to assess the satisfaction level of the participants regarding Aromatherapy provided during first stage of Labour.

The satisfaction score was classified as follows:

Score	**Percentage (%)**	**Interpretation**
< 12	< 40%	Low level of satisfaction
12 – 20	40 - 69%	Moderate level of satisfaction
21 – 30	70 – 100%	High level of satisfaction

Psychometric Assessment of the Instruments

Validity of the instruments

Validity is the degree to which an instrument measures what it is intended to measure (Polit and Beck, 2012).

Content validity of the tool, was obtained from seven experts in the field of Obstetrics and Gynaecology. Seven of them were nursing personnel. The suggestions given by the validators regarding instruments was made in the final preparation of the tool.

Reliability of the tool

Reliability is the degree of consistence or dependability with which an instrument measures an attribute (Polit and Beck, 2012). The reliability was found using Pearsons correlation formula.

1. Visual pain analogue scale – 0.9(inter rater method)
2. Pain coping scale for parturient mother– 0.9 (inter rater technique).
3. Rating scale on satisfaction on peppermint aromotherapy upon Labour pain – 0.9 (test – retest method).

Pilot study

Pilot study is a small scale version or trial run done in preparation for a major study (Polit and Beck, 2012). The purpose of the pilot study was to find out the feasibility and practicability of study design.

The pilot study was conducted at St..Antonys hospital Chennai by selecting 12 parturient mothers with six parturient mother in the Control group and six in the Experimental group using simple random sampling in order to assess the methodology and tool. The level of Labour pain, coping and fetomaternal parameters were assessed using visual pain analogue scale, pain coping scale and modified WHO partograph respectively for both the Control and Experimental group before therapy. Aromatherapy was provided for every10 minutes till the first stage of labour pain. Again the pain level, coping level and feto maternal parameters were assessed for both the groups. The level of satisfaction on Aromatherapy was assessed from the Experimental group after delivery. After the pilot study, it was found to be feasible and effective and the study instruments were found to be appropriate.

ETHICAL CONSIDERATION

The study was conducted

- after the approval of ethical committee of Apollo Hospitals
- after obtaining written consent from the participants
- by maintaining confidentiality throughout the study.

Data Collection Procedure

Data collection is gathering information about something which the researcher has chosen to explore or investigate (Crookes and Davies, 1998).

The researcher was trained for one week on Aromatherapy and certified before data collection. Protection of human rights was maintained and the data was collected day and night from May to June.

The participants were selected using simple random sampling method. 60 parturient mothers were selected among which 30 women were assigned to the Control group and 30 women to the Experimental group and the data was collected from the participants through interview and through medical records.

The Labour pain level was assessed by the visual pain analogue scale, coping level with pain coping scale and fetomaternal parameters using modified WHO partograph before intervention for both Control and Experimental group of parturient mother. Aromatherapy was provided at the cervical dilatation of 4 - 10cm for every 10 minutes for Experimental group of parturient mother. The pain level, coping level and fetomaternal parameters were assessed after each intervention and with the cervical dilatation of 4-5 cm, 6-7 cm, 8-10 cm for both groups with the same tools. The level of satisfaction on Aroma trherapy was assessed in the Experimental group of parturient mothers using rating scale after delivery.

Problem Faced During Data Collection

- Few parturient mothers expressed that they experiencing inconvenience while they are filling pain scale.

Plan for Data Analysis

Data analysis is the systematic organization, synthesis of research data and testing of hypothesis using those data (Polit and Beck, 2012).

Analysis were carried out using descriptive statistics like frequency distribution, percentage, mean, standard deviation and inferential statistics like

paired ‘t’ test. The association between the Demographic variables, Obstetric variables and dependent variables were analyzed with the help of chi-square test.

Summary

This chapter dealt with the research approach, research design, setting, population, sample, sampling technique, sampling criteria, development of study instruments, reliability and validity of the instruments, pilot study, data collection procedure and plan for data analysis.

CHAPTER IV

ANALYSIS AND INTERPRETATION

Statistics are aggregates of facts, affected to a marked extend by multiplicity of causes, numerically expressed, enumerated or estimated according to reasonable standard of accuracy, collected by systematic manner for a predetermined purpose and placed in relation to each other (Agarwal, 2010).

The data was collected from 60 parturient mothers among which 30 were in the Control group and 30 were in the Experimental group. The data was analyzed using descriptive and inferential statistics based on the objectives and hypothesis. The data analysis was completed after transferring all the data to the master coding sheet.

Organization of findings

- Frequency and percentage distribution of Demographic variables, Obstetric variables, level of Labour pain, level of coping before and after Peppermint aromatherapy in the Control and Experimental group of parturient mothers.
- Frequency and percentage distribution of level of satisfaction before and after peppermint aromatherapy in the Control and Experimental group of parturient mothers.
- Comparison of mean and standard deviation of level of Labour pain, level of coping, feto maternal parameters before and after peppermint aromatherapy in the Control and Experimental group of parturient mothers.
- Association between selected Demographic variables and the level of Labour pain and coping, selected Obstetric variables and the level of

Labour pain and coping before and after peppermint aromatherapy in the Control and Experimental group of parturient mothers.

Table. 1

Frequency and Percentage Distribution of Demographic Variable in Control and Experimental Group of Parturient Mothers.

Demographic variable	Control group n=30		Experimental group n=30	
	N	p	n	P
Age in years				
Below 20 years	19	63.33	16	53.33
20-25 years	11	36.66	14	46.66
26-35years	-	-	-	-
Educational status				
Primary education	12	40	2	6.66
Secondary	14	46.66	10	33.33
Higher secondary	4	13.33	18	60
Graduate and above	-	-	-	-
Types of work				
Heavy workers	18	60	24	80
Moderate workers	11	36.66	3	10
Sedentary workers	1	3.33	3	10
Area of residency				
Urban	17	56.66	13	43.33
Rural	-	-	-	-
Suburban	13	43.33	17	56.66

Monthly income in rupees				
Below 5000	2	6.66	5	16.66
5000-10000	13	43.33	13	43.33
10001-15000	6	20	9	30
15001-20000	6	20	2	6.66
Above 20000	3	10	1	3.33
Type of family				
Nuclear family	22	73.33	26	86.66
Joint family	8	26.66	4	13.33
Extended family	-	-	-	-
Have you received information regarding labour pain relief and aromatherapy?				
Yes	30	100	30	100
No	-	-	-	-

From Table 1 infers that more than half of the parturient mothers were between the age group of 21 - 25 years (53.33% , 60%) significant percentage of them had monthly income of 5000 - 10,000 rupees (43.33%, 43.33%) and majority of them lived in nuclear family (73.33%, 86.66%), resided in sub urban area (53.33%, 53.33%) and none of them were aware of peppermint aromatherapy (100%, 100%) in the Control group and Experimental group respectively.

Figure 3 shows that majority of the parturient mothers were Hindus (80%, 86.66%) in Control and Experimental group respectively.

Figure 4 shows that more than half of the mothers (60%) were unemployed in control group .Whereas majority of the mothers (86.66%) were unemployed in experimental group.

Figure 6 shows that level of satisfaction on peppermint aromatherapy in experimental group.

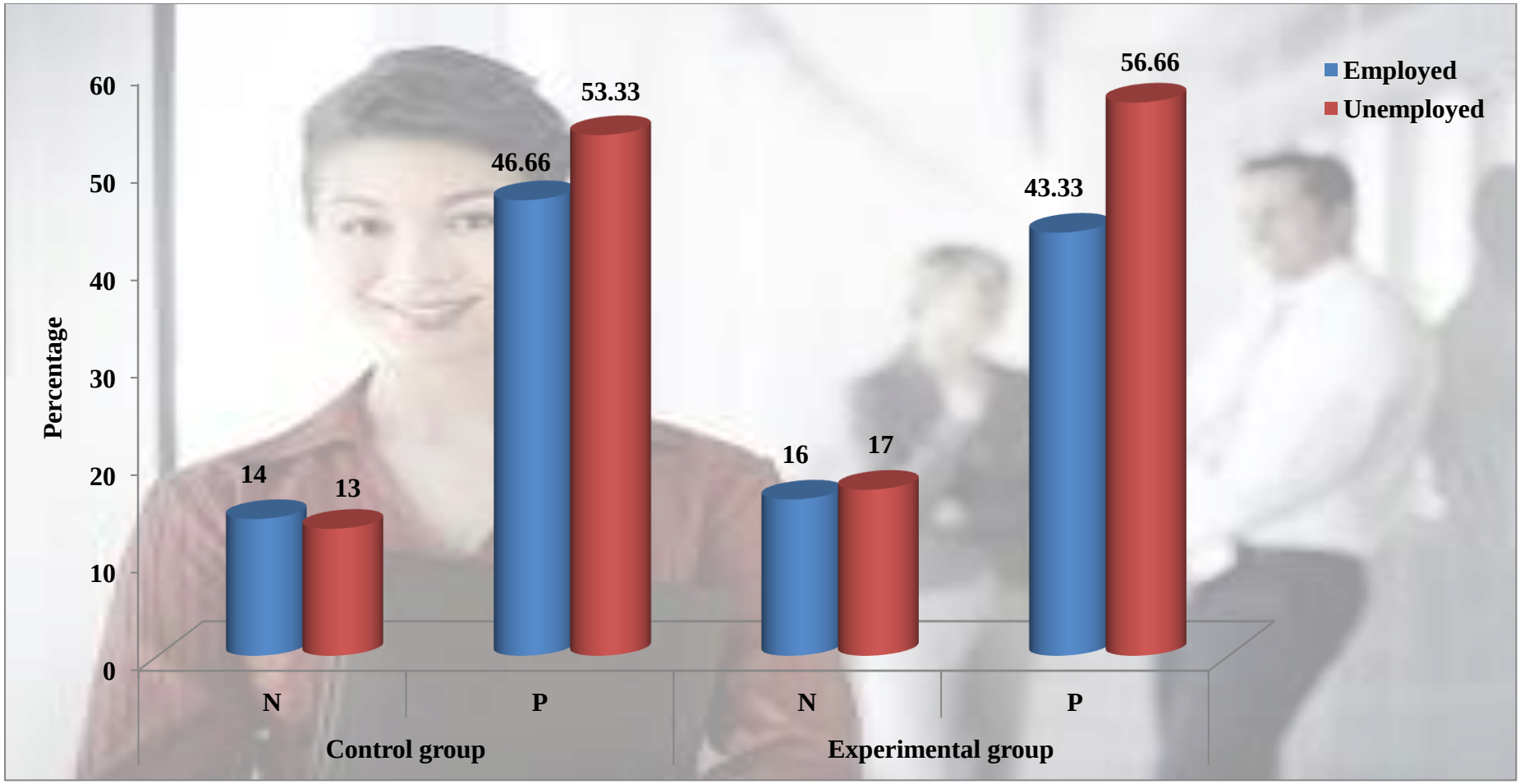

Fig.3 Percentage distribution of parturient mothers Occupational status in Control and Experimental group

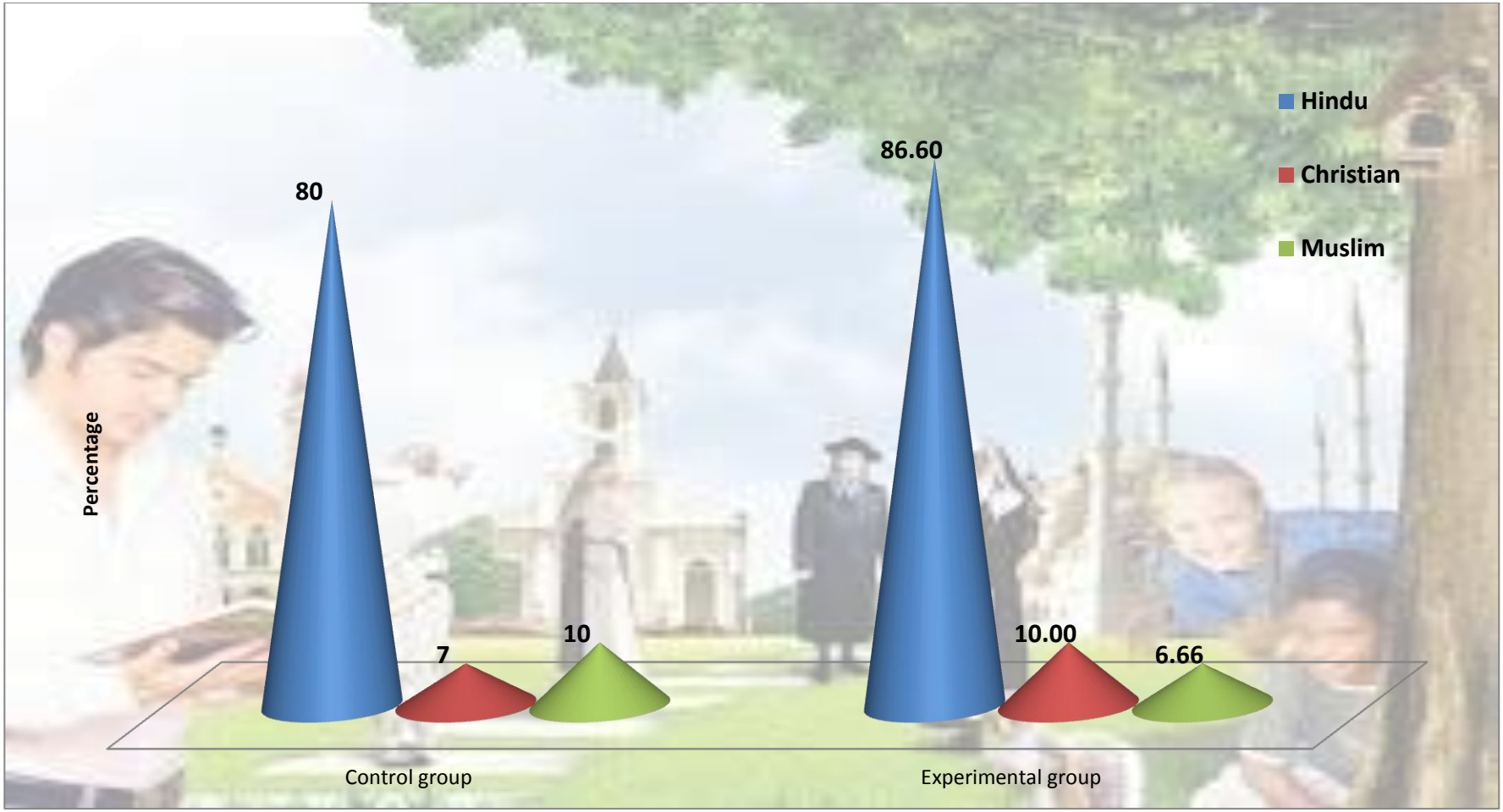

Fig.4 Percentage distribution of parturient mother's religion in Control and Experimental group

Table. 2

Frequency and Percentage Distribution of Obstetric Variables in Control and Experimental Group of Parturient Mothers.

Obstetric variables	Control group (n=30)		Experimental group (n=30)	
	n	p	n	p
Gestational age in weeks				
37-38	17	56.66	11	36.66
39-40	13	43.33	19	63.33
41-42	-	-	-	-
No of antenatal visit				
No visit	-	-	-	-
<4	30	100	30	100
>4	-	-	-	-
Duration of first stage of labour				
<9 hrs	-	-	-	-
9-10 hrs	17	56.66	13	43.33
11-12hrs	13	43.33	17	56.66
12-13hrs	-	-	-	-
>12hrs	-	-	-	-

Duration of second stage of labour				
15-30 minutes	30	100	30	100
30-45 minutes	-	-	-	-
45-1hrs	-	-	-	-
>1hrs	-	-	-	-
Duration of third stage of labour				
<10 minutes	30	100	30	100
10-12 minutes	-	-	-	-
>20 minutes	-	-	-	-
APGAR score of newborn at birth				
<3	-	-	-	-
4-6	-	-	-	-
7-10	30	100	30	100

The data presented in Table 2 depicts that more than half of them were primi gravid a women (63.33%, 66.66%) all of them had more than 4 antenatal visits (100%, 100%), and majority of them had duration of second stage of Labour less than 15-30mints, all of them had less than 10 minutes of - third stage of Labour and the APGAR score of all newborn at birth was between 7- 10 in Control group and Experimental group respectively.

Figure 5 reveals that majority of the parturient mothers (73.33%, 70%) were with the cervical dilatation of 3 – 5 cm in Control and Experimental group respectively.

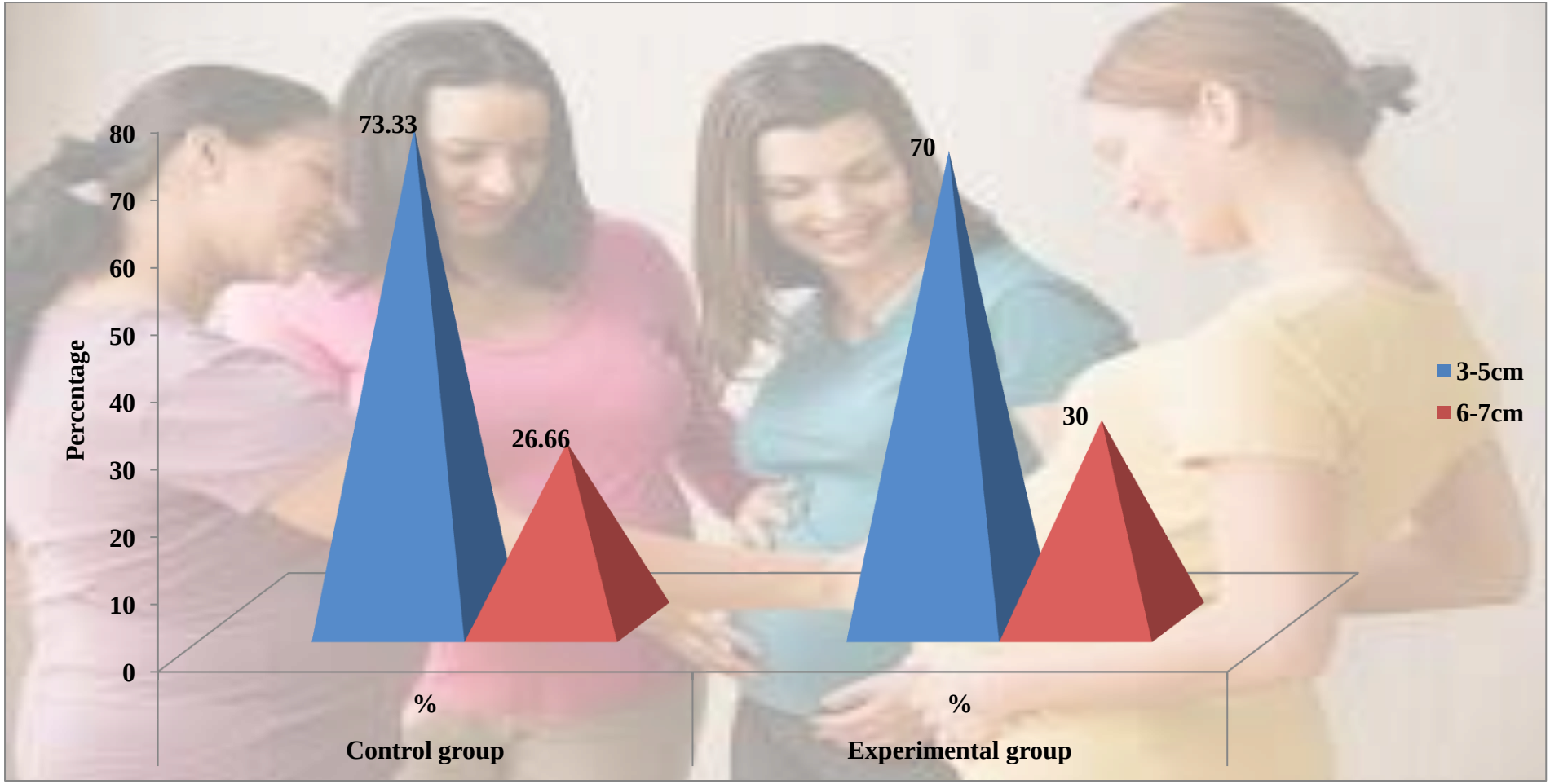

Fig.5 Percentage distribution of parturient mothers Cervical dilatation in Control and Experimental group

Table. 3

Frequency and Percentage Distribution of Level of Labour Pain Before and After peppermint aromatherapy in Control and Experimental Group of Parturient Mothers.

Level of pain	Control group				Experimental group			
	Pre test		Post test		pretest		Post test	
	n	p	n	p	n	p	n	p
No pain	-	-	-	-	-	-	-	-
Mild pain	5	16.66	26	86.66	6	20	6	20
Moderate pain	25	83.33	4	13.33	24	80	24	80
Severe pain	-	-	-	-	-	-	-	-
Worst possible pain	-	-	-	-	-	-	-	-

Table 3 reveals that significant percentage of parturient mothers had mild pain (16.6%,20%) before therapy in control group and experimental group. Whereas after therapy majority of them had moderate pain (83.3%,86.6%) in control group and experimental group.

Table. 4

Frequency and Percentage Distribution of Level of Coping Before and After peppermint aromatherapy in Control and Experimental Group of Parturient Mothers.

Level of coping	Control group				Experimental group			
	Pre test		Post test		pretest		Post test	
	n	p	n	p	n	p	n	p
No need to cope	-	-	-	-	-	-	-	-
Easy	-	-	-	-	-	-	-	-
Able to do 3R's	26	86.66	2	6.66	27	90	12	40
Need lot of help	4	13.33	28	93.33	3	10	18	60
Can't do it	-	-	-	-	-	-	-	-

Table 4 shows that majority of the parturient mothers were able to do 3R's (Rhythm, Ritual and Relaxation) (86.66%, 90%) before therapy and significant percentage of them were able to do 3 R's (6.66%, 40%) after therapy in Control and Experimental group respectively.

Table. 5

Comparison of Mean and Standard Deviation of Labour Pain score Before and After peppermint aromatherapy in Control and Experimental Group of Parturient Mothers.

Group	n	Mean	SD	t value
Control group				
Before therapy	30	6.64	0.994	8.7***
After therapy	30	7.99	0.534	
Experimental group				
Before therapy	30	7.01	0.149	21.062***
After therapy	30	4.78	0.608	

***P< 0.001

The data was presented in table 5 depicts that there is no difference in mean scores of pain level among parturient mothers before aromatherapy (m=6.64, SD=0.994, m=7.01, SD=0.149) between control group and experimental group (p>0.05) .Whereas in after therapy administration of aromatherapy the mean scores of level of pain in experimental group (m=4.78, SD=0.608) were low when compared with level of pain score of control group(m=7.99,SD=0.534).The difference was found statistically significant at p<0.001.

Table. 6

Comparison of Mean and Standard Deviation of Coping score Before and After peppermint aromatherapy in Control and Experimental Group of Parturient mothers.

Group	n	Mean	SD	t test
Control group				
Before therapy	30	4.79	1.115	9.518***
After therapy	30	2.74	0.723	
Experimental group	30	2.96	0.331	17.426***
Before therapy	30	5.60	0.928	
After therapy				

***P< 0.001

Table 6 depicts that the mean scores of coping was low after therapy (M=5.60, SD=0.928) in comparison with before therapy (M=2.96, SD=0.331), in the Control group and the mean scores of level of coping was high after therapy (M=2.74, SD=0.723) in comparison with before therapy in (M=4.79, SD=1.115) Experimental group(P>0.05). Hence null hypothesis Ho1 "There will be no significant relationship between the level of labour pain, coping feto maternal parameters and aroma therapy in control and experimental group of parturient mothers" was rejected.

Table. 7

Comparison of Mean and Standard Deviation of Feto-Maternal Parameters Score Before and After peppermint aromatherapy in Control Group of Parturient Mothers.

Fetomaternal parameter	Before therapy		After therapy		t test
	Mean	SD	Mean	SD	
Fetal heart rate	134.3	3.11	134.3	4.95	9.02
Uterine contraction frequency	2.9	0.49	3.8	0.25	2.31
Uterine contraction duration	52.56	5.93	48.3	8.01	0.16
Cervical dilatation	4.6	0.24	6	0.84	2.64
Systolic blood pressure	117.15	4.28	117	3.93	0.55
Diastolic blood pressure	76.33	3.69	76.7	3.82	0.73

**P< 0.01

Table 7 depicts that the uterine dilatation and uterine contraction were increased in after therapy in comparison with before therapy were (M=134.3, SD=3.11; M=2.9, SD=0.49), (M=52.56, SD=5.93; M=4.6, SD=0.24) Control group of parturient mothers. It shows that peppermint aromatherapy has not produced adverse effects on uterine contraction and cervical dilatation in control group .

Table. 8

Comparison of Mean and Standard Deviation of Feto-Maternal Parameters Score Before and After peppermint aromatherapy in experimental Group of Parturient Mothers.

Fetomaternal parameters	Before therapy		After therapy		t test
	Mean	SD	Mean	SD	
Fetal heart rate	132.95	4.44	136.25	4.45	3.7
Uterine contraction frequency	3.15	0.30	2.22	0.24	16.38
Uterine contraction duration	53.69 3	6.31 0.77	68.10 5	7.86 0.90	9.02 17.04
Cervical dilatation	116.75	2.912	117.64	2.60	1.27
Systolic blood pressure	76.61	2.99	77.39	2.02	1.26
Diastolic blood pressure					

**P< 0.01

Table 8 depicts that the uterine dilatation and uterine contraction were increased in after therapy in comparison with before therapy were (M=132.95, SD=4.44; M=3.15, SD=0.30), (M=53.69, SD=6.31; M=3, SD=0.77) and (M=136.25, SD=4.45; M=2.22, SD=0.24), (M=68.10, SD=7.86; M=5, SD=0.90) in Experimental group parturient mothers. It shows that peppermint aromatherapy has not produced adverse effects on uterine contraction and cervical dilatation in experimental group.

Table. 9

Frequency and Percentage Distribution of Level of Satisfaction on Peppermint aromatherapy in Experimental Group of Parturient mothers.

Level of satisfaction	Experimental group	
	f	P
Low	0	0
Moderate	4	13.33
High	26	86.66

The data from the Table 8 shows that majority of the participants in Experimental group were highly satisfied (86.66%) with the peppermint aromatherapy during the first stage of Labour and none of them reported dissatisfaction towards the intervention.

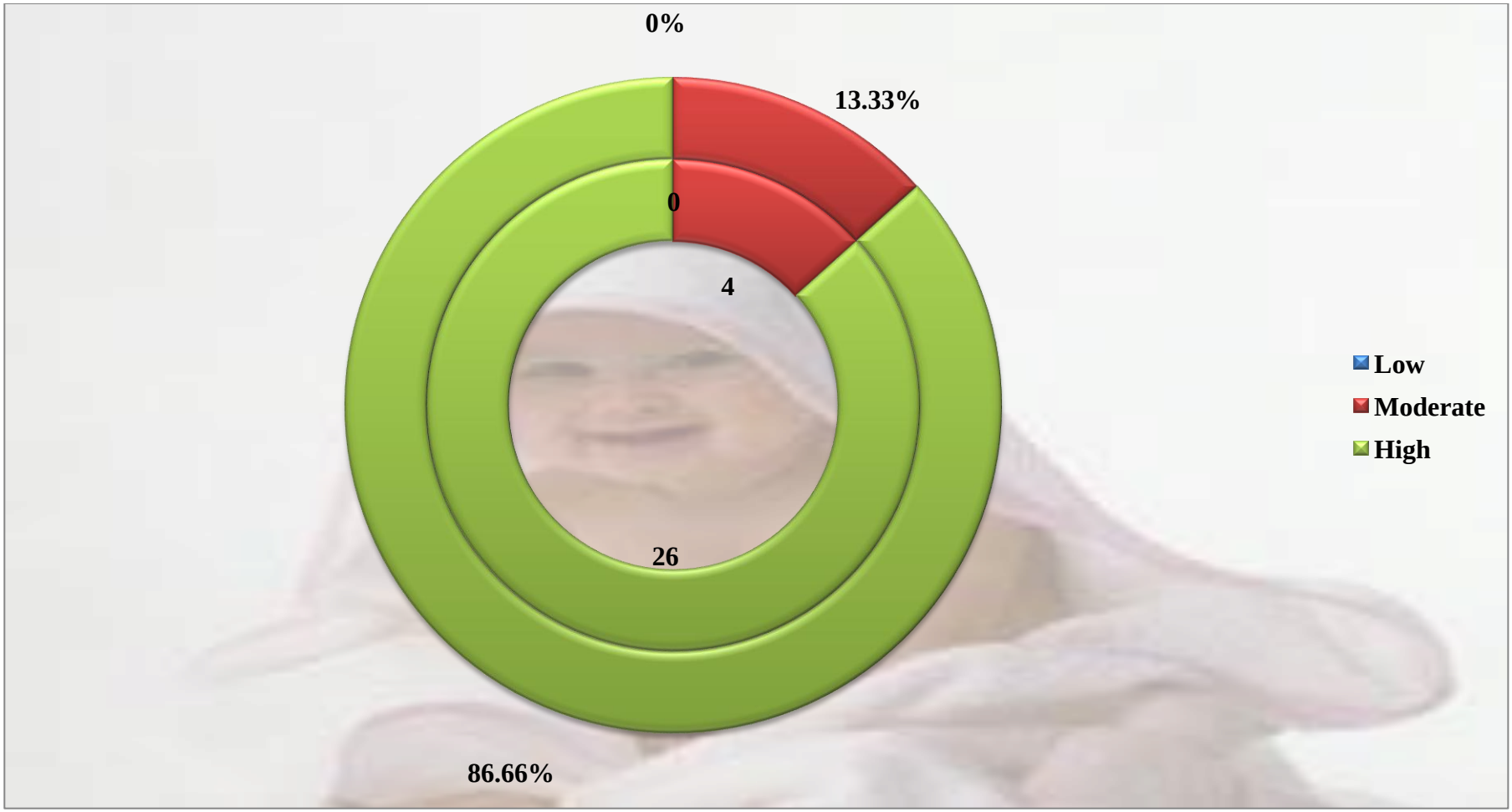

Fig.6 Percentage distribution of Level of Satisfaction on Peppermint aromatherapy in Experimental Group of Parturient mothers

Table. 10

Association Between the Selected Demographic Variables and Level of Labour Pain After peppermint aromatherapy in Control Group of Parturient Mothers.

Demographic variable	Mild pain	Moderate pain	df	χ^2
Age in years				
Upto 25	2	14		0.2
Above 25	3	11	1	
Educational status				
Upto higher	1	13		
secondary	-	-	1	1.69
Above higher	4	12		
Secondary	-	-		
Occupation				
Employed	3	10		
Unemployed	2	15	1	0.66
Religion				
Hindu	4	20		
Christian	0	3	2	1.2
Muslim	1	2		
Monthly income				
Upto 10000	3	12		0.24
Above 10000	2	13	1	

Type of family				
Nuclear family	4	18		0.47
Joint family	2	6	1	
Area of residence				
Urban	1	11		0.96
Suburban	4	14	1	
Previous information regarding pain relief and Labour pain				
Yes	0	0		0
No	5	25	1	

From the data presented in Table 10 revealed that there is no significant association between age, religion, educational status, occupation, monthly income, type of family, area of residence, and previous information regarding pain relief and level of Labour pain after peppermint aromatherapy in the Control group of parturient mothers(P>0.05). Hence null hypothesis Ho2 "There will be no significant association between selected demographic variables and level of labour pain, coping before and after aroma therapy in control and experimental group of parturient mothers "was retained.

Table. 11

Association Between the Selected Demographic Variables and Level of Labour Pain After peppermint aromatherapy in Experimental Group of Parturient Mothers.

Demographic variable	Mild pain	Moderate pain	df	χ^2
Age in years				
Upto 25	1	16	1	0.82
Above 25	5	8		
Educational status				
Upto higher secondary	4	12	1	0.52
Above higher secondary	2	12		
Occupation				
Employed	0	4	1	1.15
Unemployed	6	20		
Religion				
Hindu	5	21	2	
Christian	0	2		0.11
Muslim	1	1		
Monthly Income				
Upto 10000	2	15	1	0.65
Above 10000	3	10		

Type of family				
Nuclear family	4	22	1	0.25
Joint family	2	2		
Area of residence				
Urban	1	13	1	0.69
Suburban	5	11		
Previous information regarding pain relief and labour pain				
Yes	0	0	1	0
No	11	19		

Table 11 shows that there is no significant association between age, religion, educational status, occupation, monthly income, type of family, area of residence and previous information regarding pain relief and level of Labour pain after peppermint aromatherapy among the Experimental group of parturient mothers(P>0.05) Hence the null hypothesis Ho2" There will be no significant association between selected demographic variables and level of labour pain, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.

Table: 12

Association between the selected demographic variables and level of coping after peppermint aromatherapy in control group of parturient mothers.

Demographic variable	Needs lot of help	Able to do 3R"s	df	χ^2
Age in years				
Upto25	5	14		0.38
Above 25	6	5	1	
Educational status				
Upto higher	5	14		
secondary	-	-		1.38
Above higher	6	5	1	
secondary	-	-		
Occupation				
Employed	4	8	1	0.08
Unemployed	7	11		
Religion				
Hindu	8	16	2	
Christian	2	1		0.09
Muslim	1	2		
Monthly income				
Upto 10000	5	9		1.06
Above10000	6	10	1	

Type of family				
Nuclear family	8	14		0.02
Joint nfamily	3	5	1	
Area of residency				
Urban	9	8		1.28
suburban	2	11	1	
Previous information regarding pain relief and labour pain				
Yes	0	0		
No	11	19	1	0

It can be depicts from the Table 12 that there is no significant association between age, religion, educational status, occupation, monthly income, type of family, area of residence and previous information regarding pain relief and level of coping after peppermint aromatherapy in the Control group(P>0.05). Hence the null hypothesis Ho2 “There will be no significant association between selected demographic variables and level of labour pain, coping before and after aroma therapy in control and experimental group of parturient mothers” was retained

Table :13

Association between the selected demographic variables and level of coping after peppermint aromatherapy in experimental group of parturient mothers.

Demographic variable	Need lot of help		Able to do 3R"s	
Age in years				
Upto 25	12	6		0.83
Above 25	6	6	1	
Educational status				
Upto higher secondary	11	5		1.08
Above higher Secondary	7	7	1	
Occupation				
Employed	3	1		0.2
Unemployed	16	10	1	
Religion				
Hindu	15	11	2	0.25
Christian	2	0		
Muslim	1	1		
Monthly income				
Upto10000	13	5		1.78
Above 10000	5	7	1	
Type of family				
Nuclear family	16	14	1	0.18
Joint family	2	5		

Area of residence				
Urban	9	8		0.08
Suburban	2	11	1	
Previous information regarding pain relief and labour pain				
Yes	0	0		0
No	11	19	1	

The data from the above Table 13 reveals that there is no significant association between age, religion, educational status, occupation, monthly income, Type of family and previous information regarding pain relief and coping among peppermint aromatherapy in the Experimental group after peppermint aromatherapy. The frequency of the parturient mothers who were able to do 3R's was zero before peppermint aromatherapy($P>0.05$). Thus the null hypothesis Ho2 "There will be no significant association between selected demographic variables and level of labour pain, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.

Table :14

Association between the selected obstetric variables and level of labour pain after therapy in control group of parturient mothers.

Obstetric variable	Mild pain	Moderate pain	df	χ^2
Gestational age in weeks				
<38weeks	1	16		1.27
>38weeks	4	9	1	
No of antenatal visits				
<4	0	0		0
>4	5	25	1	
Cervical dilatation				
<5cm	2	20		0.4
>5cm	3	5	1	
Duration of first stage labour				
<10hours	3	14		0.021
>10hours	2	11	1	
Duration of second stage Labour				
15-30minutes	15	5		2.619
30-45minutes	6	3	1	
45-1hours	-	-		
>1hours	-	-		

Duration of third stage of labour				
<10min	4	19	1	0.026
>10min	1	6		
APGAR score of newborn at birth				
<5	5	14	1	0.16
>5	1	10		

The above table 14 depicts that there is no significant association between gravid, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second and third stage of Labour, APGAR score of newborn at birth with the level of Labour pain after peppermint aromatherapy in the Control group(P>0.05). Hence null hypothesis Ho3 "There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.

Table. 15

Association Between the Selected Obstetric Variables and Level of Labour Pain After peppermint aromatherapy in Experimental Group of Parturient mothers.

Obstetric variable	Mild pain	Moderate pain	df	χ^2
Gestational age in week				
<38weeks	3	8		0.56
>38weeks	3	16	1	
Number of antenatal visits				
<4	0	0		0
>4	6	24	1	
Cervical dilatation				
<5cm	5	16		0.61
>5cm	1	8	1	
Duration of first stage of labour				
<10hours	3	9		0.3
>10hours	3	15	1	
Duration of second stage of labour				
15-30minutes	5	14		0.16
30-45minutes	1	10	1	
45-1hours	-	-		
>1hours	-	-		

Duration of third stage of labour				
<10min	0	0	1	0
>10min	6	24		
APGAR score of newborn at birth				
≤6	9	14	1	0.24
>6	2	5		

Table 15 reveals that there is no significant association with gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second and third stage of Labour, APGAR score of newborn at birth with the level of Labour pain after peppermint aromatherapy in the Experimental group(P>0.05). Hence null hypothesis Ho3 "There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.

Table :16

Association Between the Selected Obstetric Variables and Level of Coping After in Control Group of Parturient mothers.

Obstetric variable	Needs lot of help	Able to do 3R"s	df	χ^2
Gestational age in weeks				
<38weeks	6	11		0.028
>38weeks	5	8	1	
Number of antenatal visits				
<4	0	0		0
>4	11	19	1	
Cervical dilatation				
<5cm	5	17		0.01
>5cm	2	2	1	
Duration of first stage of labour				
<10hours	5	9		0.88
>10hours	6	10	1	
Duration of second stage of labour				
15-30minutes	9	14	1	1.42
30-45minutes	2	5		
45-1hour	-	-		
>1hour	-	-		

Duration of third stage labour				
<10min	9	0		0.24
>10min	2	19	1	
APGAR score of newborn at birth				
≤6	0	0		0
>6	11	19	1	

It can be depicts from the Table 16 that there is no significant association with gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second and third stage of Labour, APGAR score of newborn at birth with the level of coping after peppermint aromatherapy in the Control group(P>0.05). Hence null hypothesis Ho3 "There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.

Table. 17

Association Between the Selected Obstetric Variables and Level of Coping After peppermint aromatherapy in Experimental Group of Parturient Mothers.

Obstetric variable	Needs lot of help	Able to do 3R"S	df	χ^2
Gestational age in weeks				
<38weeks	4	7		1.02
>38weeks	14	5	1	
Number of antenatal visits				
<4	0	0		0
>4	18	12	1	
Cervical dilatation				
<5cm	12	9		0.22
>5cm	6	3	1	
Duration of first stage of labour				
<10hours	6	7		1.81
>10hours	12	5	1	
Duration of second stage of labour				
15-30minutes	14	9		0.02
30-45minutes	4	3	1	

Duration of third stage labour				
<10min	11	8		0.09
>10min	7	4	1	
APGAR score of newborn at birth				
≤6	0	0		0
>6	8	12	1	

The presented data from Table 17 reveals that there is no significant association between with gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second and third stage of Labour, APGAR score of newborn at birth with the level of coping after peppermint aromatherapy in the Experimental group(P0.05). Hence the null hypothesis Ho3 "There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers "was retained.

Summary

This chapter dealt with the analysis and the interpretation of the data collected by the researcher. From the analysis it can be inferred that the level of Labour pain was low and level of coping was high after therapy in the Experimental group than the Control group. Thus it shows that the peppermint aromatherapy was effective in reducing Labour pain perception during the first stage of Labour among the parturient mothers.

CHAPTER V

DISCUSSION

Statement of the Problem

An experimental study to assess the effectiveness of aromatherapy upon first stage labour pain, and coping among Primi parturient mothers at selected hospital, Chennai.

Objectives of the study

Primary objectives

1. To assess the level of labour pain and coping before and after peppermint aromatherapy among control and experimental group of primi parturient mothers.
2. To assess the effectiveness of aromatherapy upon first stage labour pain, and coping among Primi parturient mothers
3. To determine the level of satisfaction upon peppermint aroma therapy among experimental group of primiparturient mothers.
4. To find out the association between the selected demographic variables and the level of labour pain, coping before and after therapy in the control and experimental group primiparturient mothers.
5. To findout the association between the selected obstetrical variables and the level of labour pain, coping before and after pepper mint aroma therapy in control and experimental group of primiparturient mothers.

Secondary objectives

1. To assess the fetomaternal parameters before and after peppermint aromatherapy among control and experimental group of primi parturient mothers.
2. To compare the fetomaternal parameter among control and experimental group of primi parturient mothers before and after peppermint aromatherapy.

This study was carried out for the parturient mothers with the cervical dilatation of 4-10cm and got admitted in Andhra Mahila Sabha Hospitals, Chennai. The level of Labour pain, coping level and feto maternal parameters were assessed for the Control and Experimental group of parturient mothers and peppermint aromatherapy was provided to the Experimental group of parturient mothers with the cervical dilatation of 4-10cm for 30 minutes and pain level, coping level and feto maternal parameters were assessed again for both the groups. The level of satisfaction upon peppermint aromatherapy was assessed among the Experimental group of mothers after the Labour.

The discussion is presented under the following headings:

- Demographic variables and Obstetric variables of Control and Experimental group of parturient mothers.
- Mean score and standard deviation of level of Labour pain, coping level and feto maternal parameters before and after peppermint aromatherapy.
- Assessment of level of satisfaction upon peppermint aromatherapy among the Experimental group of parturient mothers.

- Association between selected Demographic variables and level of Labour pain and coping after peppermint aromatherapy.
- Association between selected Obstetric variables and level of Labour pain and coping after peppermint aromatherapy.

Demographic variables of parturient mothers

More than half of the parturient mothers in both the Control and Experimental group were in the age group of 21 - 25 years (53.33%, 60%) which shows that most of them are aware about the right age of reproduction and there is less chance to have complications during pregnancy and delivery.

The educational qualification of the women shows that significant percentage of them in the Control and Experimental group had only higher secondary education (40%, 50%) and significant number of the women (50%,43.33%) in the Experimental group was graduates. As women with inadequate education may have inadequate information regarding health care practices, the researcher felt that doing higher education helps mother in better understanding about Labour process and better coping and thus all the women should be encouraged to do their higher education in addition to schooling.

More than half of them were from sub urban area (53.33%, 53.33%) in control group and experimental group respectively and even though the women were distributed in different areas of residence they seek good medical advice and are aware about the advantages of taking adequate antenatal care and thus reducing the incidence of complications during delivery.

Among the women of both the Control and Experimental group, majority of them belong to nuclear family (73.3%, 86.66%) respectively. The researcher feels that as the responsibility to care other family members were less in the nuclear families, it promotes the mother to seek antenatal care with the support of their spouse. A study conducted by Allendorf in 2010 says that among nuclear families, women with better marital relationships are more likely to use antenatal care services delivered in a health-care facility than others.

None of the women in the Control and Experimental group receive previous information about peppermint aromatherapy (100%, 100%) which shows that they were not familiar with the various alternative pain relief measures. Hence it is the duty of the nurse midwives to explain to the mother about various methods available for pain relief during Labour.

Obstetric variables of the parturient mothers

Women in the Control and Experimental group were between 39 – 40 weeks of gestation (43.33%, 63.33%) during delivery. This proves that risk of preterm Labour, post term Labour, maternal and fetal complications was reduced with regular antenatal checkups, and advanced screening methods. The health care workers were playing a vital role in delivering the baby at the right time without leading to post term Labour complications. This view was supported by Aaron et.al. (2008) in their study conducted at the Department of Obstetrics and Gynecology it proves that maternal complications were high beyond 40 weeks of gestation.

All of the women (100%, 100%) in both the Control and Experimental group attended more than four antenatal visit emphasizes that most of the women were aware about the importance of regular antenatal checkup in reducing the complications. It is felt by the researcher that recent advances in the health care services improved the outcome of Labour through increased antenatal visits. Majority of them (100%, 100%) APGAR score of newborn at birth in both the Control and Experimental group were between 7 – 10 which emphasized that there was no fetal complication because of peppermint aromatherapy.

Mean and Standard Deviation of pain level before and after peppermint aromatherapy in the Control and Experimental group of parturient mothers

Majority of women in the Control group had moderate pain (83.3%) before Peppermint aromatherapy and had severe pain (13.33%) after peppermint aromatherapy. The mean pain level in the Control group was high after therapy (M=5.8, SD=0.88) compared to before therapy (M=4, S.D=1.17) whereas the mean pain level was slightly high (M=4.6, SD=0.81) after therapy in the Experimental group when compared with before therapy (M=3.6, SD=0.81).

This shows that the peppermint aromatherapy was effective in reducing the level of Labour pain perception. Many women need some type of pain relieving measures to deal with pain during childbirth. The management of Labour pain is a primary responsibility of the nurse. Interventions to reduce pain perception are one of the essential aspects of nursing care that must be considered during a Labour. Obstetrics and Gynecology it proves that maternal complications were high beyond 40 weeks of gestation.

All of the women (100%, 100%) in both the Control and Experimental group attended more than four antenatal visit emphasizes that most of the women were aware about the importance of regular antenatal checkup in reducing the complications. It is felt by the researcher that recent advances in the health care services improved the outcome of Labour through increased antenatal visits.

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Mean and Standard deviation of coping level before and after peppermint aromatherapy in the Control and Experimental group of parturient mothers

Majority of the women needed lot of help after peppermint aromatherapy (93.33%) in Control group when compared with Experimental group (60%). Significant percentage of the women were able to do 3R's (40%) in Experimental group when compared with Control group (6.66%). The mean coping level was low after therapy (M=2.00, SD=0.87) in comparison with before therapy (M=4.2, SD=0.94), and the mean coping level was high after therapy (M=4.3, SD=0.69) in comparison with before therapy (M=3.3, SD=0.60) in Control and Experimental group respectively.

A study conducted by Abushaikha in 2007 among Jordanian women describes that they used different coping methods which included physiological, psychological, spiritual and cognitive methods to cope during Labour. Thus it is the responsibility of every nurse midwife to understand the importance of using various coping methods during Labour.

Feto maternal parameters of the parturient mothers

Among the feto maternal parameters of the parturient mothers there is no significant difference was found in the uterine contraction and cervical dilatation. The uterine dilatation and uterine contraction were increased in after therapy in comparison with before therapy in Control (M=4, SD=0; M=6, SD=0), (M=2.5, SD=0.50; M=4, SD=0) and Experimental (M=4, SD=0; M=6, SD=0), (M=3, SD=0; M=4, SD=0) group of parturient mothers which shows that peppermint aromatherapy did not have adverse effects over the mother and fetus.

Level of satisfaction on peppermint aromatherapy among parturient mothers

Majority of the women were highly satisfied (86.66%) with peppermint aromatherapy and none of them had unsatisfaction towards the therapy. This interprets that peppermint aromatherapy was highly effective in reducing the Labour pain perception and improving the coping of the women. There are many techniques to reduce the Labour pain perception, most of it is invasive or has adverse effects on the mother or the baby or both. But peppermint aromatherapy is a type of non-invasive procedure that has good effect on reducing the Labour pain perception without affecting the mother or the baby. Thus the midwives should understand the importance of using pain relief methods which are harmless and they should be encouraged in practicing such therapies.

Association between selected Demographic variables and level of Labour pain and coping after peppermint aromatherapy in the Control and Experimental group of parturient mothers

In both the Control and Experimental group of parturient mothers, no significant association was found between Demographic variables and the level of Labour pain which proves that Demographic variables has no influence over the pain perception. Hence some type of pain relief methods has to be provided for all the women to reduce the pain irrespective of their Demographic background.

Similarly no association was found between Demographic variables and the level of coping in both the Control and Experimental group of parturient mothers that Demographic variables may not alter the coping level of the women and hence it is the responsibility of the nurse midwife to help the mother in coping

with the Labour pain. so it is the responsibility of a midwife to help the mother to cope with Labour process irrespective of Demographic background.

Association between selected Obstetric variables and level of Labour pain and coping after peppermint aromatherapy in the Control and Experimental group of parturient mothers

There was no significant association between Obstetric variable, gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second, third stage of Labour and APGAR score of newborn at birth with the level of Labour pain after peppermint aromatherapy in the Control group($P<0.05$). Hence null hypothesis Ho3 was retained. There was no significant association between gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second ,third stage of Labour and APGAR score of newborn at birth with the level of Labour pain after peppermint aromatherapy in the Experimental group($P>0.05$) Hence null hypothesis Ho3 "There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.

There was no significant association between Obstetrical variable such as gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second ,third stage of Labour and APGAR score of newborn at birth with the level of coping after peppermint aromatherapy in the Control group($P>0.05$). Hence null hypothesis Ho3 was retained.

There was no significant association between gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second ,third stage of Labour and APGAR score of newborn at birth with the level of coping after peppermint aromatherapy in the Experimental group($P>0.05$). Hence null hypothesis Ho3 was retained. Which emphasizes that Obstetric variables has no influence over the pain perception and coping level of the women and necessitates provision of external agent in reducing the Labour pain perception and improving the coping level. As everybody in the Control and Experimental group experienced moderate pain before peppermint aromatherapy no statistics could be applied to find the association between selected Obstetric variables and the level of Labour pain and coping.

Summary

This chapter has dealt with the discussion of various aspects of the study findings. This emphasized the Demographic variables and Obstetric variables of the parturient mothers and peppermint aromatherapy. It has also dealt with the mean and standard deviation of level of Labour pain, coping and feto maternal parameters before and after peppermint aromatherapy in Control and Experimental group, association between selected Demographic and Obstetrical variables with level of Labour pain and coping after peppermint aromatherapy.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS AND LIMITATIONS

Summary

This study was conducted by the researcher to find the effectiveness of peppermint aromatherapy upon Labour pain and coping during first stage of Labour in parturient mothers.

Objectives of the study

Primary objectives

1. To assess the level of labour pain and coping before and after peppermint aromatherapy among control and experimental group of primi parturient mothers.
2. To assess the effectiveness of aromatherapy upon first stage labour pain, and coping among Primi parturient mothers
3. To determine the level of satisfaction upon peppermint aroma therapy among experimental group of primiparturient mothers.
4. To find out association between the selected demographic variables and the level of labour pain, coping before and after therapy in the control and experimental group primiparturient mothers.
5. To find out the association between the selected obstetrical variables and the level of labour pain, coping before and after pepper mint aroma therapy in control and experimental group of primiparturient mothers

Secondary objectives

1. To assess the fetomaternal parameters before and after peppermint aromatherapy among control and experimental group of primi parturient mothers.
2. To compare the fetomaternal parameter among control and experimental group of primi parturient mothers before and after peppermint aromatherapy.

Null hypothesis

Ho1 There will be no significant relationship between the level of labour pain, coping feto maternal parameters and aroma therapy in control and experimental group of parturient mothers.

Ho2 There will be no significant association between selected demographic variables and level of labour pain, coping before and after aroma therapy in control and experimental group of parturient mothers.

Ho3 There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers.

Major Findings of the Study

Demographic variables of parturient mothers

More than half of the parturient mothers in both the Control and Experimental group were up to the age group of 25 years (53.33%, 60%) which shows that most of them are aware about the right age of reproduction and there is less chance to have complications during pregnancy and delivery.

The educational qualification of the women shows that most of them in the Control and Experimental group had only higher secondary education (40%, 50%) and significant number of the women (50%, 43.33%) in the Experimental group was graduates. As women with inadequate education may have inadequate information regarding health care practices, the researcher felt that doing higher education helps mother in better understanding about Labour process and better coping and thus all the women should be encouraged to do their higher education in addition to schooling.

More than half of them in both the Control and Experimental group were from sub urban area (53.33%, 53.33%) respectively and even though the women were distributed in different areas of residence they seek good medical advice and are aware about the advantages of taking adequate antenatal care and thus reducing the incidence of complications during delivery.

Among the women of both the Control and Experimental group, majority of them belong to nuclear family (73.3%, 86.66%) respectively. The researcher feels that as the responsibility to care other family members were less in the nuclear families, it promotes the mother to seek antenatal care with the support of their spouse. A study conducted by Allendorf in 2010 says that among nuclear families, women with better marital relationships are more likely to use antenatal care services delivered in a health-care facility than others.

None of the women in the Control and Experimental group receive previous information about peppermint aromatherapy (100%, 100%) which shows that they were not familiar with the various alternative pain relief measures.

Hence it is the duty of the nurse midwives to explain to the mother about various methods available for pain relief during Labour.

Obstetric variables of the parturient mothers

Significant percentage of the women in the Control and Experimental group were between 39 – 40 weeks of gestation (43.33%, 63.33%) during delivery. This proves that risk of preterm Labour, post term Labour, maternal and fetal complications was reduced with regular antenatal checkups, and advanced screening methods. The health care workers were playing a vital role in delivering the baby at the right time without leading to post term Labour complications. This view was supported by Aaron et.al. (2008) in their study conducted at the Department of Obstetrics and Gynecology it proves that maternal complications were high beyond 40 weeks of gestation.

All of the women (100%, 100%) in both the Control and Experimental group attended more than four antenatal visit emphasizes that most of the women were aware about the importance of regular antenatal checkup in reducing the complications. It is felt by the researcher that recent advances in the health care services improved the outcome of Labour through increased antenatal visits.

All of them (100%, 100%) APGAR score of newborn at birth in both the Control and Experimental group were between 7 – 10 which emphasized that there was no fetal complication because of peppermint aromatherapy.

Mean and Standard Deviation of pain level before and after peppermint aromatherapy in the Control and Experimental group of parturient mothers

Majority of women in the Control group had moderate pain (83.3%) before peppermint aromatherapy and had severe pain (13.33%) after peppermint aromatherapy. The mean pain level in the Control group was high after therapy (M=5.8, SD=0.88) compared to before therapy (M=4, S.D=1.17) whereas the mean pain level was slightly high (M=4.6, SD=0.81) after therapy in the Experimental group when compared with before therapy (M=3.6, SD=0.81).

This shows that the peppermint aromatherapy was effective in reducing the level of Labour pain perception. Many women need some type of pain relieving measures to deal with pain during childbirth. The management of Labour pain is a primary responsibility of the nurse. Interventions to reduce pain perception are one of the essential aspects of nursing care that must be considered during a Labour.

Mean and Standard deviation of coping level before and after peppermint aromatherapy in the Control and Experimental group of parturient mothers

Majority of the women needed lot of help after peppermint aromatherapy (93.33%) in Control group when compared with Experimental group (60%). Significant percentage of the women were able to do 3R's (40%) in Experimental group when compared with Control group (6.66%). The mean coping level was low after therapy (M=2.00, SD=0.87) in comparison with before therapy (M=4.2, SD=0.94), and the mean coping level was high after therapy (M=4.3, SD=0.69) in

comparison with before therapy (M=3.3, SD=0.60) in Control and Experimental group respectively.

A study conducted by Abushaikha in 2007 among Jordanian women describes that they used different coping methods which included physiological, psychological, spiritual and cognitive methods to cope during Labour. Thus it is the responsibility of every nurse midwife to understand the importance of using various coping methods during Labour.

Feto maternal parameters of the parturient mothers

Among the feto maternal parameters of the parturient mothers there is no significant difference was found in the uterine contraction and cervical dilatation. The uterine dilatation and uterine contraction were increased in after therapy in comparison with before therapy in Control (M=4, SD=0; M=6, SD=0), (M=2.5, SD=0.50; M=4, SD=0) and Experimental (M=4, SD=0; M=6, SD=0), (M=3, SD=0; M=4, SD=0) group of parturient mothers which shows that peppermint aromatherapy was not producing any adverse effects on the uterine contraction and cervical dilatation.

Level of satisfaction on peppermint aromatherapy among parturient mothers

Majority of the women were highly satisfied (86.66%) with peppermint aromatherapy and none of them had unsatisfaction towards the therapy. This interprets that peppermint aromatherapy was highly effective in reducing the Labour pain perception and improving the coping of the women. There are many techniques to reduce the Labour pain perception, most of it is invasive or has

adverse effects on the mother or the baby. But peppermint aromatherapy is a type of non-invasive procedure that has good effect on reducing the Labour pain perception without affecting the mother or the baby. Thus the midwives should understand the importance of using pain relief methods which are harmless and they should be encouraged in practicing such therapies.

Association between selected Demographic variables and level of Labour pain and coping after peppermint aromatherapy in the Control and Experimental group of parturient mothers

In both the Control and Experimental group of parturient mothers, no significant association was found between Demographic variables and the level of Labour pain which proves that Demographic variables has no influence over the pain perception. Hence some type of pain relief methods has to be provided for all the women to reduce the pain irrespective of their Demographic background.

Similarly no association was found between Demographic variables and the level of coping in both the Control and Experimental group of parturient mothers that Demographic variables may not alter the coping level of the women and hence it is the responsibility of the nurse midwife to help the mother in coping with the Labour pain. so it is the responsibility of a midwife to help the mother to cope with Labour process irrespective of Demographic background.

Association between selected Obstetric variables and level of Labour pain and coping after peppermint aromatherapy in the Control and Experimental group of parturient mothers

There was no significant association between Obstetric variable, gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second, third stage of Labour and APGAR score of newborn at birth with the level of Labour pain after peppermint aromatherapy in the Control group($P>0.05$). Hence null hypothesis Ho3 "There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers" was retained.

There was no significant association between gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second ,third stage of Labour and APGAR score of newborn at birth with the level of Labour pain after peppermint aromatherapy in the Experimental group($P>0.05$) Hence null hypothesis Ho3 was retained. There was no significant association between Obstetrical variable such as gravida, parity, gestational age in weeks, number. of antenatal visits, cervical dilatation, duration of first, second ,third stage of Labour and APGAR score of newborn at birth with the level of coping after peppermint aromatherapy in the Control group. Hence null hypothesis Ho3 "There will be no significant association between selected obstetric variables and level of labour pain and, coping before and after aroma therapy in control and experimental group of parturient mothers "was retained.

There was no significant association between gravida, parity, gestational age in weeks, number of antenatal visits, cervical dilatation, duration of first, second ,third stage of Labour and APGAR score of newborn at birth with the level of coping after peppermint aromatherapy in the Experimental group($P>0.05$). Hence null hypothesis Ho3 was retained. Which emphasizes that Obstetric variables has no influence over the pain perception and coping level of the women and necessitates provision of external agent in reducing the Labour pain perception and improving the coping level. As everybody in the Control and Experimental group experienced moderate pain before peppermint aromatherapy no statistics could be applied to find the association between selected Obstetric variables and the level of Labour pain and coping.

Conclusion

This study shows that peppermint aromatherapy was effective in reducing the Labour pain perception and improving the coping level of parturient mothers. The Experimental group of parturient mothers who received peppermint aromatherapy had decreased pain perception, increased level of coping and was highly satisfied with the therapy. Peppermint aromatherapy is a non – invasive procedure and has no adverse effects on the mother and the fetus and hence the midwives could be encouraged to use this as a pain relief method during Labour.

Implications

Nursing Practice

The parturient mothers of the Experimental group felt less pain perception and improved coping with the use of peppermint aromatherapy during the first

stage of Labour than the Control group. It proves that the peppermint aromatherapy was more effective to use. The intensity of Labour pain, the length of Labour lasts and women's response to the pain varies widely. The environment in which the women give birth and the support they receive from their care givers and companions will also affect their reaction to pain and their ability to cope. Many women opt to use some form of pain relieving method to help them cope during Labour. Hence it becomes a necessity for the midwives to have adequate knowledge and skill about various non-pharmacological methods. Though there is availability of various non-pharmacological methods, peppermint aromatherapy technique is noninvasive, safe and effective and even the spouse and the family members can be taught to do peppermint aromatherapy. Thus nurses should perform peppermint aromatherapy to promote comfort for the mother in Labour.

Nursing Education

The nursing profession providing compassionate care towards the patients is a noble profession in itself. A national conference conducted by National Institutes of Health of Alternative Medicine and the Uniformed Services University of Health Sciences concluded that nursing and medical education should include information about complementary and alternative therapies. Today the government of India has included alternative medicine and therapies in primary health care setup which shows government's support towards alternative medicine. Nurse educators should consider the inclusion of complementary and alternative therapies in nursing curricula with increasing frequency and motivation by major part of the public for the use of these therapies.

Nursing Administration

With the advent of various technologies in the field of nursing, nurses are expected to be skilful in various aspects of providing care for which student nurses has to be trained in it through their education. Thus it is the responsibility of the nurse administrators to include the concept of alternative and complementary therapies in the nursing curricula. The nursing staffs and the nursing students should be encouraged by the nurse administrators to learn various nursing modalities in caring patients and could conduct certifying courses which would help them to practice alternative and complementary therapies.

Nursing Research

The competence of a registered nurse to perform the skills of complementary and alternative therapies begins with nursing education and ends with nursing practice which requires an evidence to give assurance that the knowledge and practice gained by the nurse are safe and provide comfort for the patients. Thus major research has to be promoted and conducted by the nurse researchers to prove the effectiveness of alternative and complementary therapies in nursing profession.

Recommendations

- The same study can be conducted with large number of samples.
- A comparison can be made with different stages of Labour.
- The same study can be conducted at different setting.
- A comparison can be made between different types of alternative and complementary therapies.

Limitations

- The study findings cannot be generalized due to small sample size.
- Quasi experimental research could not be possible due to practical difficulties
- The study findings cannot be generalized due to limited period

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APPENDIX I

LETTER SEEKING PERMISSION TO CONDUCT THE STUDY

Apollo College of Nursing
(A unit of Apollo Hospitals Educational Trust)
(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

CO/067/14 ***08.02.2014***

To

The Director,
Andhra Mahila Sabha Hospital,
Mylapore,
Chennai.

Respected Sir/ Madam,

Sub.: To request permission for research study – Reg.

Greetings! *As part of the curriculum requirement our 2nd year M.Sc. (N) student Ms.E.Angelinjudi has selected the following title for her research study.*

"An Experimental Study to Assess the Effectiveness of Aromatherapy Upon First stage Labour Pain and coping Primi Parturient Mothers at selected Hospital Chennai"

So I kindly request your good selves to permit her to conduct study in your esteemed hospital.

Thanking you,

Dr. LATHA VENKATESAN
PRINCIPAL

Regd. Office : 21, Greams Lane Off, Greams Road, Chennai - 600 006. Ph. : +91-44-2829 3333, 2829 0200 Website : www.apollohospitalseducation.com
Unit Office : Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095. Phone : 044 - 2653 4387 Fax : 044 - 2653 4923 / 2653 4386

APPENDIX II

LETTER PERMITTING TO CONDUCT THE STUDY

ANDHRA MAHILA SABHA

Dr. DURGABAI DESHMUKH GENERAL HOSPITAL & RESEARCH CENTRE

75 Years 1938 - 2013

Founder President - **Dr. (Smt) Durgabai Deshmukh**

President : **Smt. K. Lakshmi**

Smt. P. Vimala
Vice-President, AMS - Chennai

Sri. T.K. Ranganathan
Addl. Secretary, AMS - Chennai &
Acting Secretary, D.D.G.H. & R.C.

Smt. Usha Kanda
Vice-President - Hyderabad

Prof. P. Uma Maheswara Reddy
General Secretary - AMS

Dr. S. Muthusamy
Chairman, D.D.G.H. & R.C.

Dr. Veena B. Swamy
Vice-Chairperson, D.D.G.H. & R.C.

03.06.2014

MS.E.Angelin Judi,
M.Sc. 2nd Year Student,
Apollo College of Nursing,
Vanagaram to Ambattur Main Road,
Ayanambakkam, Chennai-600 095

Madam,

Sub: Training to Experimental Study – reg.
Ref: Your letter No. CO/0262/14 dated.19.05.2014

With reference to your letter cited above, we are pleased to permit you to conduct the following title for research study.

"An Experimental Study to Assess the Effectiveness of Aromatherapy Upon First Stage Labour Pain and coping among Primi Parturient Mothers "

from 04.06.2014 in this institution without detriment to the normal functioning of the hospital. You will be permitted to conduct this study under the supervision of Dr.Leelavathi, Gynaecologist. A normal fee of Rs.3000/- (Rupees three thousand only) will be charged from you.

We wish you a fruitful internship training.

Thanking you,

Yours faithfully,
for DDGH & RC.,

(S.BALACHANDRAN)
Manager

No. 11, Dr. Durgabai Deshmukh Road, Raja Annamalai Puram, Chennai - 600 028.
Phone : 2493 8311/21/31/41/51 Fax : 2461 1384 e-mail : ddghrc@hotmail.com

APPENDIX III

ETHICAL COMMITTEE PERMISSION TO CONDUCT THE STUDY

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

09 April, 2014

To,
Ms. Angeline Judi ,
2nd Year M.SC (Nursing),
Department of Obstetrics & Gynecology Nursing,
Apollo College of Nursing, Chennai.

Ref: An experimental study to assess the effectiveness of aroma therapy upon first stage labour pain and coping among primi parturient mothers at selected Hospitals, Chennai

Sub: Approval of the above referenced project and its related documents.

Dear Ms. Angeline Judi,

Ethics Committee-Apollo Hospitals has received the following document submitted by you related to the conduct of the above-referenced study.

- Project Proposal
- Informed Consent Form

The Ethics Committee-Apollo Hospitals reviewed and discussed the Project proposal documents submitted by you related to the conduct of the above referenced Project at its meeting held on 08 April, 2014.
The following Ethics Committee Members were present at the meeting held on 08 April, 2014

Name	Gender	Designation	Affiliation	Position in the committee
Dr. P. Nalini Rao	F	Independent Consultant, Social Research and development	Madras School of Social Work, Chennai	Chairperson (Social Scientist)
Dr. Rema Menon	F	Blood Bank Officer	Apollo Hospitals, Chennai	Member Secretary (Clinician)
Dr.Muralidaran	M	Professor & Head, Department of Pharmacology	BaidMetha College of Pharmacy, Chennai	EC-Member (Pharmacologist)
Mrs. Mathanghi	F	Executive- project	Apollo Pharmacy, Chennai	EC-Member (Layperson)
Mr. Philip.T.Paul	M	Lawyer	Madras High Court, Chennai	EC-Member (Lawyer)

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
Tel : 91 - 44 - 2829 1618, 2829 3333, 91 - 44 - 2829 5465 Extn : 5045 / 6641
Fax : 91 - 44 - 2829 1618 / 4449 E - Mail : ecapollochennai@gmail.com

Dr. K. Sathyamurthi	M	Asst. Professor	School of Social work, Chennai	EC-Member (Social Scientist)
Dr. VijayaKumar Chockan	M	Medical Superintendant	Apollo Speciality Hospitals, Chennai	EC-Member (Clinician)
Dr. K. C. Krishnakumar	M	Medical Superintendant	Apollo First Med Hospitals, Chennai	EC-Member (Clinician)

After due ethical and scientific consideration, the Ethics Committee has approved the above presentation submitted by you.

The EC review and approval of the report is only to meet the academic requirement and will not amount to any approval of the conclusions / recommendations as conclusive, deserving adoption and implementation, in any form, in any healthcare institution.

The Ethics Committee is constituted and works as per ICH-GCP, ICMR and revised Schedule Y guidelines.

With Regards,

Date: 09/04/14

Dr. Rema Menon,
Ethics Committee-Member Secretary,
Apollo Hospitals, Chennai,
Tamil Nadu, India.

Dr. REMA MENON
MEMBER SECRETARY
ETHICS COMMITTEE
APOLLO HOSPITALS
CHENNAI
TAMILNADU

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21, Greams Lane, Off Greams Road, Chennai - 600 006
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APPENDIX IV

LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH

From

Ms.E.Angelin judi

M.Sc., (Nursing) II Year,

Apollo College of Nursing,

Chennai-95.

To

Forwarded Through:

Dr. Latha Venkatesan,

Principal,

Apollo College of Nursing.

Sub: Request for opinions and suggestions of experts for content validity of Research tool.

Respected Sir/ Madam

Greetings! As a part of the Curriculum Requirement the following research title is selected for the study. on "**An experimental study to assess the effectiveness of aromatherapy upon firststage labour pain, and coping among Primi parturient mothers at selected hospitals, Chennai .**" I will be highly privileged to have your valuable suggestions with regard to the establishment of Content Validity of Research tool. So, I request you to validate my Research tool and give suggestions about the tool.

Yours Sincerely,

(Ms. E.Angelin judi)

APPENDIX V

LIST OF EXPERTS FOR CONTENT VALIDITY

1. **Dr. Latha Venkatesan., M.Sc (N)., M.Phil (N), Ph.D (N),**

   Principal,

   Apollo College of Nursing, Chennai – 95.

2. **Prof. Mrs. Lizy Sonia. A., M.Sc(N)., Ph.D(N),**

   Vice Principal,

   Apollo College of Nursing, Chennai – 95.

3. **Prof. Vijaya lakshmi. K., M.Sc (N)., Ph.D (N)**

   HOD of Mental health nursing Apollo College of Nursing,

   Chennai – 95.

4. **Prof. Nesa Sathya Satchi., M.Sc (N)., Ph.D (N)**

   Lecturer, Child Health Nursing, Apollo College of Nursing,

   Chennai – 95.

5. **Ms.Dhanalakshmi., M.Sc (N)., Ph.D (N)**

   Lacturer, Obstetrics and Gynaecological Nursing,

   Apollo College of Nursing,

   Chennai – 95.

6. **Ms. Thamizharasi., M.Sc (N).,**

   Lacturer, Obstetrics and Gynaecological Nursing,

   Apollo College of Nursing, Chennai – 95.

7. **Ms. Saraswathy., M.Sc.(N).,**

   Lecturer, Obstetrics and Gynaecological Nursing ,

   Apollo College of Nursing,

   Chennai – 95.

8. **Ms. Juliet., M.Sc.(N).,**

Lecturer, Obstetrics and Gynaecological Nursing ,

Apollo College of Nursing, Chennai – 95.

9. **Ms.Pandiselvi., M.Sc.(N).,**

Lecturer, Obstetrics and Gynaecological Nursing ,

Apollo College of Nursing, Chennai – 95.

10. **Ms.Urmila., M.Sc.(N).,**

Lecturer, Obstetrics and Gynaecological Nursing ,

Apollo College of Nursing,

Chennai – 95.

APPENDIX VI

CONTENT VALIDITY CERTIFICATE

This is to certify that tools and content for the research study developed by Ms.E.Angelin judi, II year M.Sc (Nursing) student of Apollo College of Nursing for her dissertation "**An experimental study to assess the effectiveness of aromatherapy upon firststage labour pain,and coping among Primi parturient mothers at selected hospitals, Chennai .**"was validated.

Signature of the Expert

APPENDIX VII

RESEARCH PARTICIPANT CONSENT FORM

Dear Participant,

I am E.Angelin judi., M.Sc. Nursing student of Apollo College of Nursing, Chennai. As a part of my study, I have selected a Research Project on "**An experimental study to assess the effectiveness of aromatherapy upon firststage labour pain,and coping among Primi parturient mothers at selected hospitals,Chennai."**

I hereby seek your consent and co-operation to participate in the study. Please be frank and honest in your response. The information collected will be kept confidential and anonymity will be maintained.

Signature of the Researcher

I, ……, hereby give my consent to participate in the study.

Signature of the Participant

Place:

Date:

ஆராய்ச்சியில் பங்கு பெறுபவருக்கான ஒப்புதல் படிவம்

அன்பார்ந்த தாய்மாரே!

என் பெயர் எ. ஏஞ்சலின் ஜூடி, நான் அப்போலோ செவிலியர் கல்லூரியல் முதுகலை செவிலியர் பயிர்ச்சி பெறும் மாணவி என்னுடைய பயிர்ச்சியின் ஒரு பகுதியாக பெப்பர் மின்ற் அரோமாதெரபி ஆய்வை செய்கிறேன்.

இதனால் இந்த ஆராய்ச்சியில் நீங்கள் பங்குபெற உங்களுடைய ஒப்புதல் மற்றும் ஒத்துழைப்பை வேண்டுகிறேன். தயவு செய்து உங்களுடைய பதில்கள் அனைத்தும் வெளிப்படையாகவும் மற்றும் உண்மையானதாகவும் இருக்க வேண்டும் உங்களுடைய பெயர் எங்கும் வெளியிடமாட்டாது.

ஆராய்ச்சியாளரின் கையொப்பம்

_____என்ற நான் இந்த ஆராய்ச்சியில் பங்குபெற ஒப்புதல் அளிக்கிறேன்.

பங்குபெறுவோரின் கையொப்பம்

இடம்:

தேதி:

APPENDIX VIII

CERTIFICATE FOR PEPPERMINT AROMATHERAPY

Institute Of Alternative And Complementary Therapy

Affiliated of Dr.Vijay's Health Science and Research Foundation
Chennai, India.

S.No: FIACT-AT-53

ID No: EV-AT-003-2014

Awards this

Certificate of Attendance

to

E. Angelin Judi

after having enthusiastically participated and trained in Aromatherapy
in the Topic of *An Experimental Study to assess the effectiveness of Aromatherapy upon First stage Labour pain and coping among primiparturient mothers at Selected Hospital Chennai*

Given this 23rd day of May, 2014

L. Sathish L.

Lecturer

K. Jamundeeswari

Course Director

Dr.E.VIJAYAKUMAR, MPT(Ortho).,MD(Acu).,DYT.,FIMT.,MIAP.
President/Founder

APPENDIX IX

CERTIFICATE FOR ENGLISH EDITING

TO WHOMSO EVER IT MAY CONCERN

This is to certify that the dissertation 'An experimental study assess the effectiveness of Aromatherapy upon Labor pain and coping among prim parturient mothers' by Ms.E.Angelin Judi, II Year M.Sc(N) student, Apollo College of Nursing was edited for English language appropriateness.

D. Amirtha Joycelin

Signature

D. AMIRTHA JOYCELIN
PG ASSISTANT (ENGLISH)
GHSS KALKULAM

APPENDIX X

CERTIFICATE FOR TAMIL EDITING

TO WHOMSO EVER IT MAY CONCERN

This is to certify that the tool for demographic variable Performa, Obstetric Variable Performa, visual pain analogue scale, pain coping scale and Bating scale on satisfaction of peppermint aromatherapy upon labor pain translated by Ms.E.Angelin Judi, II Year M.Sc(N) student, Apollo College of Nursing for dissertation 'An experimental study assess the effectiveness of Aromatherapy upon Labor pain and coping among prim parturient mothers at selected hospital, Chennai' edited for Tamil language appropriateness.

Signature

APPENDIX XI

DEMOGRAPHIC VARIABLE PROFORMA

Purpose

This proforma is used to measure the demographic variables such as age, educational status, occupation, area of residence, family monthly income, type of family and sources of information.

Instructions

The investigator will be interviewing the mother to fill the details.

Sample no:

1. Age in years

1.1 Below 20 years ☐

1.2 20 – 25 years ☐

1.3 26 - 30 years ☐

2. Educational status

2.1 Primary school ☐

2.2 Secondary education ☐

2.3 Higher secondary ☐

2.4 Graduate ☐

2.5 Postgraduate ☐

3. Occupation

3.1 Employed ☐

3.2 Unemployed ☐

4. Type of work

4.1 Heavy workers ☐

4.2 moderate workers ☐

4.3 sedentary workers ☐

5. Religion

5.1 Hindu ☐

5.2 Christian ☐

5.3 Muslim ☐

5.4 Others ☐

6. Monthly income in rupees

6.1 Below 5000 ☐

6.2 5001 – 10,000 ☐

6.3 10,001 – 15,000 ☐

6.4 15,001 – 20,000 ☐

6.5 Above 20,000 ☐

7. Type of family

7.1 Nuclear family ☐

7.2 Joint family ☐

7.3 Extended family ☐

8. Area of residence

8.1 Urban ☐

8.2 Rural ☐

8.3 Sub urban ☐

9. Have you received information regarding labour pain relief and aromatherapy?

9.1 Yes ☐

9.2 No ☐

10. If yes, source of information

10.1 Health care workers ☐

10.2 Television and Radio ☐

10.3 Newspaper ☐

10.4 Internet ☐

சமூகம் மற்றும் குடும்ப விபரங்களை அறிய உதவும் மாதிரிப் படிவம் நோக்கம்

இந்தப்படிவம் கருவுற்றிருக்கும் பெண்ணின் வயது, படிப்பு, மாத வருமானம், மதம், குடும்ப வகை மற்றும் விசிப்பிடம் பற்றிய விபரங்களை அறிய உதவுகிறது.

குறிப்பு:

கீழே கொடுக்கப்பட்டுள்ள தகவல்கள் கருவற்றிருக்கும் பெண்ணிடம் கேட்டறிந்து ஆராய்ச்சியாளராள் நிரப்பபடும்.

மாதிரி எண்

1. வயது வருடங்களில்
   - 1.1. <20 ☐
   - 1.2. 20 – 20 ☐
   - 1.3. 26 – 30 ☐
2. படிப்பு
   - 2.1. ஆரம்ப நிலைக் கல்வி ☐
   - 2.2. உயர்நிலைக் கல்வி ☐
   - 2.3. மேல்நிலைக் கல்வி ☐
   - 2.4. பட்டப்படிப்பு அதற்கு மேல் ☐
3. தொழில்
   - 3.1. வேலை செய்பவர் ☐
   - 3.2. வேலையில்லாதவர் ☐
4. வேலையின் வகைகள்
   - 4.1. பளுவான வேலை செய்பவர்கள் ☐
   - 4.2. மிதமான வேலை செய்பவர்கள் ☐
   - 4.3. ஒரே இடத்தில் இருந்து வேலை செய்பவர்கள் ☐
5. மதம்
   - 5.1. இந்து ☐
   - 5.2. கிறிஸ்துவம் ☐
   - 5.3. இஸ்லாமியம் ☐
   - 5.4. மற்ற மதத்தினர் ☐

6. மாத வருமானம்

6.1. < 5000 ☐

6.2. 5001 - 10000 ☐

6.3. 10,001 -15,000 ☐

6.4. 15,001 - 20000 ☐

6.5. 200001 ரூபாய்க்கு மேல் ☐

7. குடும்ப வகை

7.1. தனிக்குடும்பம் ☐

7.2. கூட்டுக் குடும்பம் ☐

7.3. விரிவுபடுத்தப்பட்ட குடும்பம் ☐

8. வசிக்கும் இடம்

8.1. நகர்புறம் ☐

8.2. கிராமப்புறம் ☐

8.3. புறநகர்ப் பகுதி ☐

9. அரோமாதெரிப்பி பற்றிய தகவல்களை முன்னரே அறிந்துள்ளீர்களா?

9.1. ஆம் ☐

9.2. இல்லை ☐

10. ஆம் எனில் குறிப்பிடவும்

10.1. மருத்துவ ஊழியர்களிடமிருந்து ☐

10.2. தொலைகாட்சி, வானொலி ☐

10.3. செய்தித்தாள் ☐

10.4. இணையத்தளம் ☐

APPENDIX XII

OBSTETRIC VARIABLE PROFORMA

Purpose:

The proforma is used by the researcher to collect information on obstetric variables such as gestational age in weeks ,number of antenatal visit, cervical dilatation, duration of first stage of labour, duration of second of labour, APGAR score of new born, birth weight of new born.

Instruction:

The researcher will be referring the hospital records of the mother to fill the details.

1. Gestational age in weeks

1.1 37 – 38 ☐

1.2 39 – 40 ☐

1.3 41 – 42 ☐

2. Number of Antenatal visits

2.1 No visit ☐

2.2 ≤ 4 ☐

2.3 > 4 ☐

3. Duration of first stage of labour

3.1 ≤9 hrs ☐

3.2 9 – 10 hrs ☐

3.3 11 – 12 hrs ☐

3.4 12 – 13hrs ☐

3.5 >12 hrs ☐

4. Duration of second stage of labour

4.1 15-30 minutes ☐

4.2 30-45 minutes ☐

4.3 45-1 hours ☐

4.4 > 1 hours ☐

5. Duration of third stage of labour

5.1 <10 minutes ☐

5.2 10 – 20 minutes ☐

5.3 > 20 minutes ☐

6. APGAR Score of newborn at birth

6.1 <3 ☐

6.2 4 -6 ☐

6.3 7 -10 ☐

கர்ப்பகால விபரங்களின் மாதிரி படிவம்

நோக்கம்:

இந்த படிவம் கர்ப்பம் தரித்த எண்ணிக்கை, கருவுற்றிருக்கும் வாரங்கள்,கருவுற்றிருக்கும் போது மருத்துவரை அணுகிய எண்ணிக்கை, கர்ப்பப்பை வாய் விரிவடைதல், கர்ப்பத்தின் முதல் நிலைக்காலம், இரண்டாம் நிலைக்காலம், மூன்றாம் நிலைக்காலம் அப்கார் மதிப்பீடு பற்றிய விவரங்களை அறிய உதவுகிறது.

குறிப்புகள் :

கீழே கொடுக்கப்பட்டுள்ள தகவல்கள் கருவுற்றிருக்கும் பெண்ணிடம் கேட்டறிந்து ஆராய்ச்சியாளரால் நிரப்பப்படும்.

1. கருவுற்றிருக்கும் வாரங்கள்

    1.1.37 - 38 ☐

    1.2.39 - 40 ☐

    1.3.41 - 42 ☐

2. கருவுற்றிருக்கும் போது மருத்துவரை அணுகிய எண்ணிக்கை

    2.1.அணுகவில்லை ☐

    2.2.≤ 4 ☐

    2.3.≥ 4 ☐

3. கரப்பத்தின் முதல் நிலைக்காலம்

    3.1.≤ 9 மணிநேரம் ☐

    3.2.9.10 மணிநேரம் ☐

    3.3.11.12 மணிநேரம் ☐

    3.4.12.13 மணிநேரம் ☐

4. கர்ப்பத்தின் இரண்டாம் நிலைக்காலம்

4.1.15-30 நிமிடங்கள் ☐

4.2.30-45 நிமிடங்கள் ☐

4.3.45-1 மணிநேரம் ☐

4.4.>1 மணிநேரம் ☐

5. கர்ப்பத்தின் மூன்றாம் நிலைக்காலம்

5.1.< 10 நிமிடங்கள் ☐

5.2.10-20 நிமிடங்கள் ☐

5.3.> 20 நிமிடங்கள் ☐

6. அப்கார் மதிப்பீடு-குழந்தை பிறந்தவுடன்

6.1.< 3 ☐

6.2.4-6 ☐

6.3.7-10 ☐

APPENDIX XIII

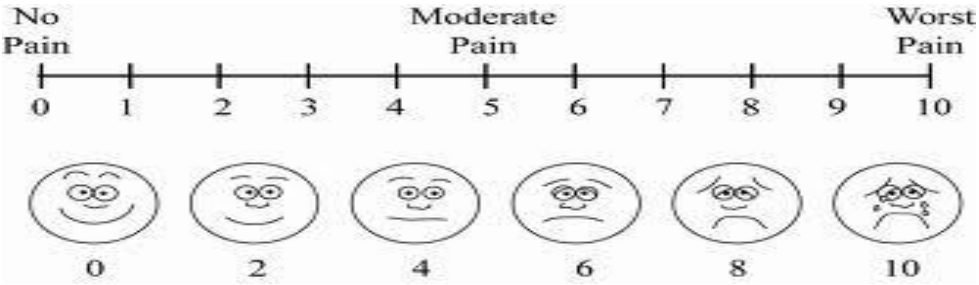
VISUAL PAIN ANALOGUE SCALE

Purpose:

The visual pain analogue scale will be used to measure the intensity of pain among parturient mothers of experimental and controlgroup before and after the use of peppermint aromatherapy during the first stage of labour

Instructions:

The researcher used to monitor the pain intensity level before and after the therapy



scores	**level of pain**
0	No pain
1- 3	Mild pain
4 – 6	Moderate pain
7- 9	Severe pain
10	Worst possible pain

Hours	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assessment of pain before therapy								
After therapy								

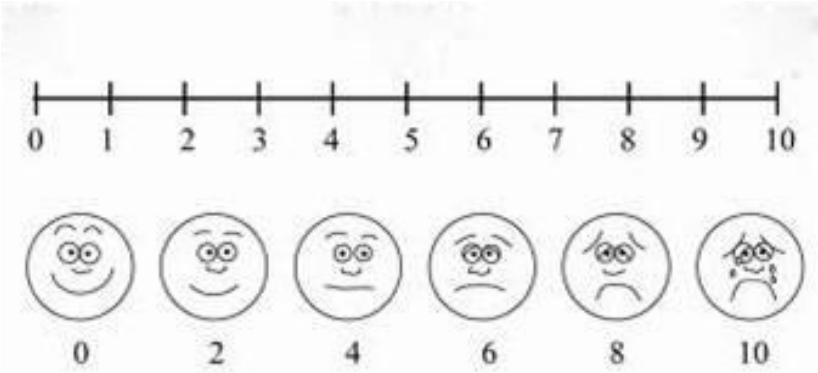
வலியின் அளவை நிர்ணயிக்கும் அளவுகோல்

நோக்கம் :

இந்த அளவுகோல் பிரசவத்தின் போது தாய்க்கு ஏற்படும் வலியின் அளவை நிர்ணயிக்க உதவுகிறது.

குறிப்புகள் :

ஆராய்ச்சியாளர் கீழ் கொடுக்கப்பட்டுள்ள முகங்களில் அது பிரசவிக்கும் பெண்ணின் வலியின் அளவை கண்டறிய உதவுகிறது. வலதுபுறம் கடைசியில் உள்ள முகம் மிகவும் மோசமான வலியை குறிக்கிறது.



வலியை நிர்ணயிக்கும் அளவுகோள்

வலியின் அளவு	1	2	3
சிகிச்சைக்கு முன்			
சிகிச்சைக்கு பின்			

APPENDIX XIV

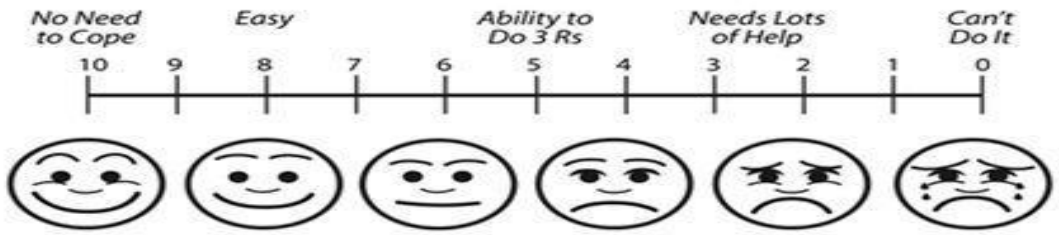
PAIN COPING SCALE

Purpose:

The scale will be used to measure the pain coping of parturient mothers of experimental and controlgroup before and after peppermint aroma therapy as scored by the researcher.

Instruction:

Please indicate your level of coping ability during uterine contraction. This response will be kept confidential.



Scores	**Level of Pain**
0	Can´t do it
1-3	Needs of lot
4-6	Able to do 3 R´s
7-9	Easy
10	No need to cope

3R's- Relaxation,Ritual,Rhythm

Hours	1	2	3	4	5	6	7	8
Assessment of pain before therapy								
After therapy								

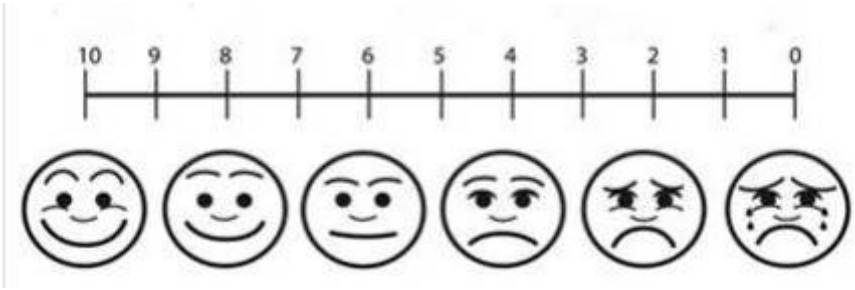
வலியின் திறனை கணக்கிடும் அளவுகோல்

நோக்கம் :

இந்த அளவுகோல் கருவுற்றிருக்கும் பெண்ணின் வலியை தாங்கிக்கொள்ளும் திறனை, பெப்பர் மின்ற் அரோமாதெரப்பி சிகிச்சைக்கு முன்னும், பின்னும் எவ்வாறு கண்டறிய உதவுகிறது.

குறிப்புகள் :

தயவுகூர்ந்து உங்கள் கர்ப்பப்பை சுருங்கும்போது உண்டமாகும் வலியை எந்த அளவிற்கு தாங்கிக் கொள்கிறீர்கள் என்பதை குறிப்பிடவும். உங்கள் பதில்கள் இரகசியமாக வைக்கப்படும்.



மதிப்பெண்	வலியின் அளவு
0	செயலின்மை
1-3	உதவியுடன் செய்ய முடியும்
4-6	3 விதத்தில் செய்ய முடியும்
7-9	எளிதாக செய்ய முடியம்
10	வலிதாங்கும் அவசியம் இல்லை

வலியின் திறன்	கர்பப் பை வாய் நீட்டிப்பு		
	4-5	6-7	8-10
வலியின் அளவு சிகிச்சைக்கு முன்			
வலியின் அளவு சிகிச்சைக்கு பின்			

* 3 விதம் - தாளம், சடங்கு, இளைப்பாறுதல்

APPENDIX XV

MODIFIED WHO PARTOGRAPH

Purpose

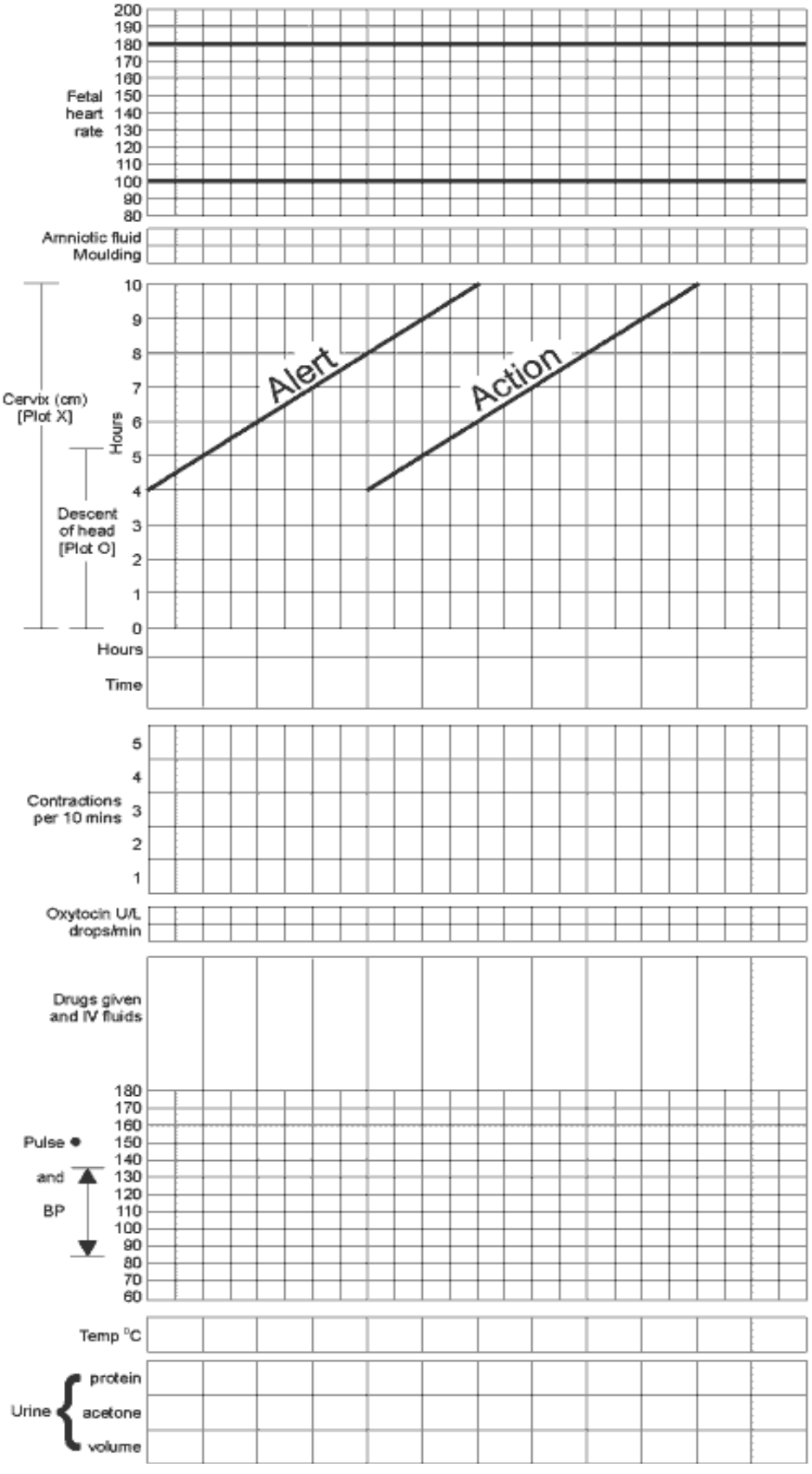
This partogram is used to record the information such as fetal heart rate, cervical dilatation, cervical effacement, contraction per 10 minutes, maternal pulse rate, blood pressure and maternal temperature before and after the therapy

Instruction

The researcher used to monitor the mother and fetal condition and record in this partogram

Name Gravida Para Hospital number

Date of admission Time of admission Ruptured membranes hours



பிரசவ வலியின் போது பெப்பற் மின்ற் அரோமாதெரப்பி செய்வதால் ஏற்படும் திருப்தியின் மதிப்பு அளவீடு

நோக்கம் :

மதிப்பீட்டு அளவு அரோமாதெரப்பி தொடர்பாக குழந்தைப் பெறும் தாய்மார்களின் திருப்திநிலை மற்றும் சிகிச்சை திறன் மதிப்பீடு வடிவமைக்கப்பட்டுள்ளது.

குறிப்பு :

மதிப்பீடு அளவு பத்து பொருட்களைக் கொண்டுள்ளது தயவு செய்து படித்து உங்களுடைய வெளிப்படையான பதில்களை கொடுக்கவும். இது இரகசியமாக வைக்கப்படும்.

BLUE PRINT

RATING SCALE ON THE SATISFACTION OF AROMATHERAPY ON FIRST STAGE LABOUR PAIN

Sl.No	CONTENT	ITEMS	TOTAL ITEMS	PERCENTAGE
1.	Approach of the investigator	1,2,	3	20%
2.	Method of application	3,4,5,6	4	40%
3.	Effectiveness of the therapy	7,8,9,10	3	40%
TOTAL			10	100%

APPENDIX XVI

RATING SCALE ON THE SATISFACTION OF PEPPERMINT AROMA THERAPY UPON FIRST STAGE LABOUR PAIN

Purpose

The rating scale is designed to assess the level of satisfaction of the parturient mothers regarding the aromatherapy and the effectiveness of the therapy

Instruction:

The rating scale consists of 10 items. Kindly read and give your response freely and frankly and the responses will be kept confidential

Sl.No	Items	Highly satisfied 4	Moderately satisfied 3	Just satisfied 2	Not satisfied 1
1.	Are you satisfied with the prior information about the therapy given by the researcher?				
2.	Are you satisfied with the presence of investigator in need?				
3.	Are you satisfied with the method of applying aromatherapy?				
4.	Are you satisfied with the frequency of applying aromatherapy?				
5.	Are you satisfied with the duration of giving aromatherapy?				
6.	Are you satisfied with the timing of aromatherapy?				
7.	Are you satisfied with the negligible discomforts of the aromatherapy?				
8.	Are you satisfied with the method of evaluation by the researcher?				

9.	Are you satisfied with the effectiveness of therapy in terms of pain reduction				
10.	Are you satisfied as peppermint aromatherapy promotes relaxation?				

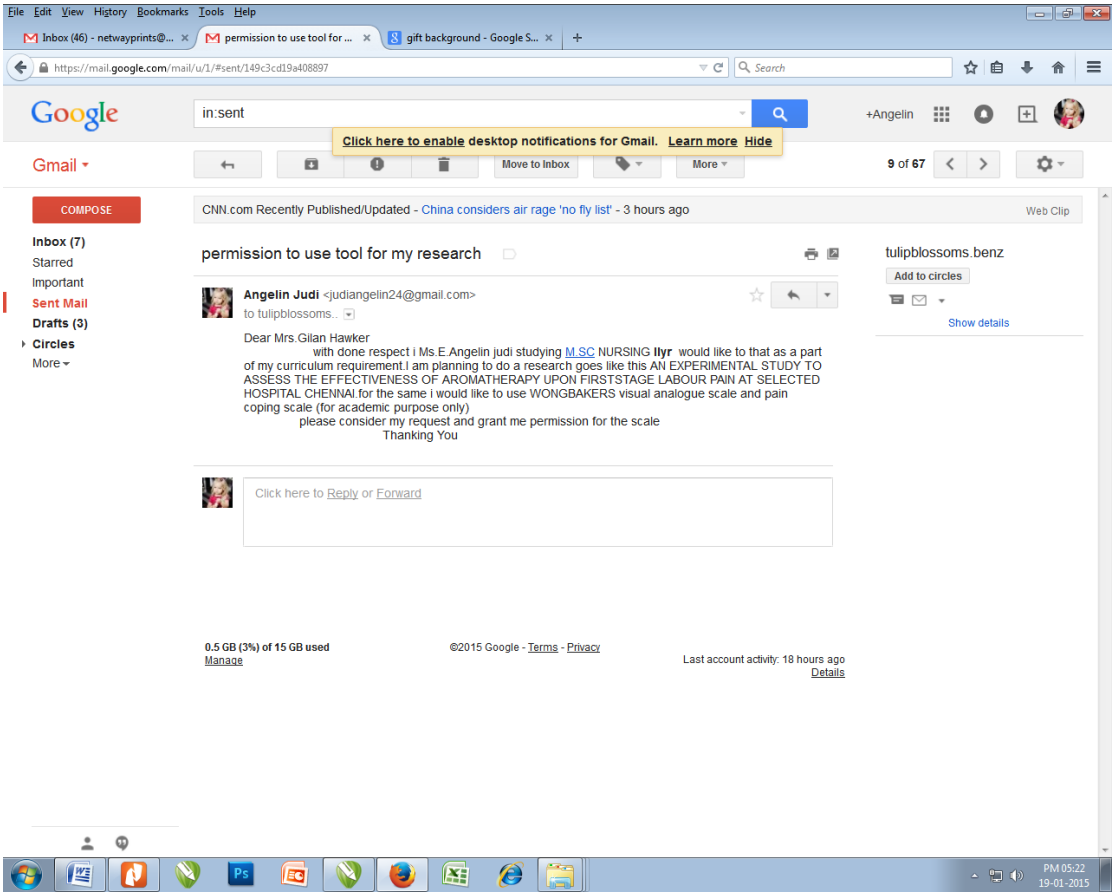
key:

SCORE	**PERCENTAGE**	**INTERPRETATION**
< 12	< 40%	Low level of satisfaction
12 – 20	40 - 69%	Moderate level of satisfaction
21 – 40	70 – 100%	High level of satisfaction

வுரிசை எண்:	கூற்று	முழு மன நிறைவு 3	மிதமான அளவு மன நிறைவு 2	மன நிறைவு 1	மன நிறைவு இல்லாமை 0
1	நீங்கள் ஆராய்ச்சியாளர் கொடுத்த சிகிச்சை பற்றிய முன்னர் தகவல் திருப்பியானதா?				
2	நீங்கள் ஆராய்ச்சியாளர் உடன் இருப்பதில் திருப்தியா?				
3	நீங்கள் அரோமாதெரப்பி செய்யும் முறையில் திருப்தி அடைந்தீர்தளா?				
4	அரோமாதெரப்பி தொடர்ந்து கொடுக்கப்படுவதால் திருப்தி அடைந்தீர்களா?				
5	அரோமாதெரப்பி கொடுக்கப்படும் காலநிலையில் திருப்தி அடைந்தீர்களா?				
6	அரோமாதெரப்பி செய்யும் நேரத்தில் திருப்தி அடைந்தீர்களா?				
7	புறக்கணிக்கப்பட்ட உபாதைகள் உங்களுக்கு இடையூறாக இருந்ததா?				
8	நீங்கள் ஆராய்ச்சியாளர் பயன்படுத்திய மதிப்பீடு முறையில் திருப்தி அடைந்தீர்களா?				
9	நீங்கள் வலியைக் குறைக்கும் வகையில் சிகிச்சைத் திறனில் திருப்தி அடைந்தீர்களா?				
10	பெப்பர் மென்ற் அரோமாதெரப்பி தொடர்ந்து மூலம் புத்துணர்ச்சி ஊக்குவிக்கப்படுகின்றதா?				

APPENDIX XVII

PERMISSION FOR USING VISUAL PAIN ANALOGUE SCALE AND PAIN COPING SCALE



APPENDIX XVIII

MANUAL ON AROMATHERAPY

Definition

Aromatherapy defined as the art and science of utilizing naturally extracted aromatic essences from plants to balance , harmonize and promote the health of body ,mind and spirit, seeks to explore the physiological, psychological and spiritual realm of the individuals response to aromatic extracts as well as to observe and enhance the individuals innate healing process.

-Rainn

General benefits of aromatherapy

- Healing properties
- Stimulates immune system
- Relieves cramps and spasm of the body
- Increasing the alertness and energy level of the body
- Aids in blood circulation
- Drives away from cold symptoms

Benefits of aromatherapy related to labourpain

- Increase circulation
- Stimulating blood flow in the pelvic region and have been known to trigger contractions
- Loosen the body muscles
- Relieving the stress and calm down the tensed mood
- Increasing the alertness and energy level of the body

Contra indication to aromatherapy

- Having polycystic ovarian disease
- Person who is used with homeopathic treatment
- Avoided for person with diabetes and kidney diseases

Procedure of aromatherapy

mixtures containing 0.2ml essence of peppermint and 2ml normal saline impregnated gauze, was attached to their dress collar, and the administration was repeated every 30 minutes and it is assess the intensity of pain in dilatations 4-5, 6-7, and 8-10cm.

APPENDIX XIX

PLAGIARISM ORIGINALITY REPORT

Plagiarism Detector - Originality Report

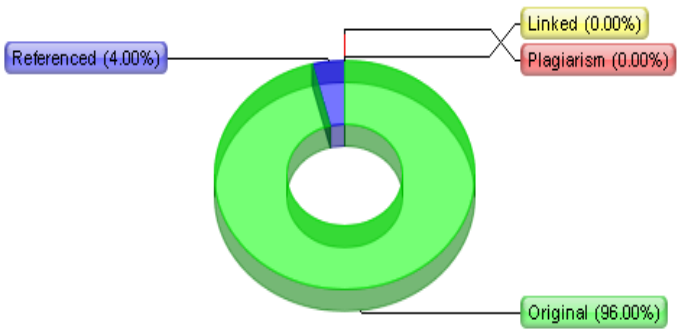
Plagiarism Detector Project:[http://plagiarism-detector.com]
Application core version:557

Originality report details:

Generation Time and Date:	1/16/2015 10:05:30 AM
Document Name:	E.ANGELIN JUDI THESIS.doc
Document Location:	C:\Documents and Settings\Administrator\Des E.ANGELIN JUDI THESIS. doc
Document Words Count:	21,564

Important Hint: To understand what exactly is meant by any report value - you can click, "Help image" . It will navigate you to the most detailed explanation at our web site.

Plagiarism Detection Chart:



Referenced 4% / Linked 0%

Original - 96% / 0% - Plagiarism

APPENDIX XX

DATA CODE SHEET

CG: Control group

EG: Experimental group

AGE: Age in years

1.1 Below 20 years

1.2 20 – 25 years

1.3 26 - 30 years

EDU: Educational Status

2.1Primary school

2.2Secondary education

2.3Higher secondary

2.4Graduate

2.5postgraduate

OCCU: Occupation

3.1Employed

3.2Unemployed

REL: Religion

4.1Hindu

4.2Christian

4.3Muslim

4.4others

MI: Monthly income

5.1below 5000

5.25000 – 10000

5.310001 – 15000

5.415001 – 20000

5.5above 20000

TOF: Type of family

6.1 Nuclear family

6.2 Joint Family

6.3 Extended family

AOR: Area of residence

7.1 Urban

7.2 Rural

7.3 Suburban

PI: Previous Information

8.1 yes

8.2 No

GRA: Gravida

1.1 Primi

1.2 Multi

PAR: Parity

2.1 One

2.2 Two

2.3 More than two

GWK: Gestational Age in Week

3.1 37 – 38

3.2 39 - 40

3.3 41 - 42

AV: Antenatal Visit

4.1 No visit

4.2 ≤ 4

4.3 > 4

CD: Cervical Dilatation

5.1 3 – 5 cm

5.2 6 – 7 cm

5.3 8 – 10 cm

DFSL: Duration of first stage of labour

6.1 9 – 10 hrs

6.2 11 – 12 hrs

6.3 12 – 13hrs

DSSL: Duration of second stage of labour

7.1 < 1 hr

7.2 1 hour – 2 hours

7.3 > 2 hours

DTSL: Duration of third stage of labour 8.1 <10 minutes

8.2 10 – 20 minutes

8.3 > 20 minutes

APG: APGAR Score 9.1<3

9.2 4 -6

9.3 7 -10

LOS – Level of Satisfaction

BT – Before Therapy

AT – After Therapy

APPENDIX XXI

MASTER CODE SHEET

CONTROL GROUP

Demographic variable								Obstetric variable						Pain		Coping		FHR		CD	UCF		UCD		SBP		DBP	
AGE	EDU	OCCU	TOW	REL	MI	TOF	AOR	GAW	AV	DFSL	DSSL	DTSL	APG	BF	AF	BF	AF	BF	AF		BF	AF	BF	AF	BF	AF	BF	AF
1.2	2.2	3.1	4.1	5.2	6.1	7.1	8.1	1.1	2.2	3.1	4.2	5.1	6.2	7.2	9	2.5	1.3	132	134	7	2.95	2.95	60.8	60.8	110	120	70	80
1.3	2.2	3.2	4.2	5.3	6.2	7.2	8.1	1.2	2.2	3.2	4.2	5.2	6.1	7	7.6	3.6	2	136	138	8	2.9	2.68	56.6	61.17	110	115	70	75
1.2	2.3	3.1	4.1	5.2	6.1	7.1	8.2	1.2	2.2	3.1	4.2	5.2	6.1	7.3	8.6	4.3	3	130	134	6.75	3	3.2	57	60	120	120	75	80
1.2	2.3	3.1	4.1	5.3	6.2	7.2	8.2	1.2	2.3	3.2	4.2	5.2	6.2	6.5	7.5	4.5	1.3	140	146	7	2.5	2	58.3	62.3	113	120	75	75
1.2	2.4	3.2	4.1	5.2	6.2	7.1	8.1	1.2	2.2	3.1	4.2	5.1	6.1	5.25	7	4.3	3	134	130	8	3.5	3	56.4	64.3	120	120	80	80
1.2	2.3	3.2	4.1	5.3	6.1	7.3	8.2	1.2	2.3	3.2	4.2	5.1	6.2	4.75	6	3.8	3	132	136	7	3.2	3	58.4	66.4	110	113	77	80
1.3	2.4	3.2	4.2	5.3	6.1	7.2	8.1	1.2	2.2	3.2	4.2	5.2	6.1	6.3	7.5	5.4	3	128	132	7	3.4	3	56.8	64	114	118	75	78
1.2	2.3	3.2	4.3	5.2	6.2	7.1	8.2	1.2	2.3	3.1	4.2	5.1	6.1	6.8	8	6	3	132	136	7	2.4	2	58	62	110	115	75	80
1.3	2.4	3.2	4.1	5.2	6.2	7.1	8.1	1.2	2.3	3.2	4.2	5.2	6.2	5.75	7.5	6.4	3	136	138	7.5	2.4	2.3	58	65.4	115	120	70	80
1.3	2.4	3.1	4.1	5.3	6.2	7.2	8.1	1.2	2.2	3.1	4.2	5.1	6.1	5.6	7	5.4	3	128	134	8	3.2	3	55.6	60	115.5	120	75.3	78
1.2	2.3	3.1	4.1	5.3	6.1	7.2	8.2	1.1	2.3	3.1	4.2	5.1	6.2	5.25	7	6	3	134	138	7.5	2.8	2.4	56.8	60	110	113.6	75	78
1.2	2.2	3.1	4.1	5.3	6.1	7.3	8.1	1.2	2.2	3.2	4.2	5.2	6.2	6.75	8	4.75	2	128	132	8	2.4	2	58	62.2	115.3	118	77	80
1.2	2.3	3.2	4.2	5.2	6.2	7.3	8.1	1.1	2.2	3.1	4.2	5.1	6.1	5.4	6.25	6	3	132	132	7	3	2.4	60	64.3	118	120	70	80
1.2	2.2	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.2	3.2	4.2	5.1	6.2	7.3	8	5.25	2	134	138	7	3	2	60	64.3	116	120	75	80
1.2	2.2	3.2	4.1	5.2	6.2	7.3	8.2	1.2	2.2	3.2	4.2	5.2	6.1	6	7.5	6	3	134	136	6.7	2.8	2.4	58.4	60	116	118	70	80
1.3	2.3	3.1	4.2	5.2	6.1	7.2	8.1	1.2	2.2	3.1	4.2	5.1	6.2	6.5	8	4.25	2	136	138	6	2.6	2.4	60	65	115	120	75.5	80
1.3	2.3	3.2	4.1	5.2	6.2	7.1	8.1	1.2	2.2	3.2	4.2	5.2	6.1	6	8	7	3	138	140	7	2.4	2.6	46.2	56	120	120	70	80
1.2	2.2	3.1	4.2	5.3	6.1	7.1	8.2	1.2	2.2	3.1	4.2	5.1	6.2	5.25	7.25	6	3	136	138	8	3	2.5	54	60.3	110	115	75	78
1.2	2.3	3.1	4.1	5.3	6.2	7.2	8.1	1.2	2.2	3.1	4.2	5.2	6.2	6	7	5.25	3	128	132	7	2.8	2.4	56	62	125	122	80	76
1.2	2.2	3.2	4.2	5.3	6.1	7.1	8.1	1.2	2.2	3.2	4.2	5.1	6.1	7	8	6	3	130	138	7	3	2	58	64	110	110	83	80
1.3	2.3	3.2	4.2	5.2	6.2	7.1	8.2	1.2	2.2	3.1	4.2	5.2	6.2	5.3	7	7.4	3	136	140	8	3	2.3	60	64	115.4	110	80	75
1.2	2.2	3.2	4.1	5.2	6.1	7.2	8.2	1.2	2.2	3.2	4.2	5.2	6.1	5.25	7	4.3	3	138	138	7	2.6	2	58	64	120	118	75	70
1.2	2.3	3.1	4.1	5.3	6.2	7.2	8.1	1.2	2.2	3.2	4.2	5.1	6.2	6.25	7	4.3	3	130	134	7	2.8	2.4	60	64.5	110	110	75	75
1.3	2.2	3.1	4.2	5.2	6.1	7.1	8.1	1.2	2.2	3.1	4.2	5.2	6.1	6	7	5	3	136	138	7	2.8	2.4	50	54	120	115	78	75
1.2	2.3	3.2	4.2	5.3	6.1	7.1	8.2	1.2	2.2	3.1	4.2	5.1	6.2	7	8.5	5.25	3	134	138	8	2.6	2	56	58	110	110	75	75
1.3	2.2	3.1	4.2	5.2	6.2	7.1	8.1	1.2	2.2	3.2	4.2	5.2	6.1	5.25	7	5	2	132	138	8	3	2.4	60	62	120	115	80	70
1.3	2.3	3.1	4.1	5.3	6.2	7.2	8.1	1.2	2.2	3.2	4.2	5.1	6.2	5.6	6.3	4.25	2.5	132	136	7	3	2.4	58	64	115.4	110	70	77
1.2	2.2	3.2	4.1	5.2	6.1	7.1	8.2	1.2	2.2	3.2	4.2	5.2	6.1	5.75	6.5	4	3	134	138	7	2.8	2.6	60	62	118	115	76	80
1.2	2.3	3.2	4.1	5.2	6.1	7.2	8.2	1.2	2.2	3.1	4.2	5.1	6.2	6	7	5	3	132	136	7	2.8	2.6	58	64	110	120	80	80
1.2	2.4	3.2	4.1	5.3	6.2	7.1	8.1	1.2	2.2	3.2	4.2	5.1	6.1	7	8	4	2.25	136	138	8	2.8	2.4	60	64	120	115	78	78

EXPERIMENTAL GROUP

	DEMOGRAPHIC VARIABLE								OBSTETRIC VARIABLE					PAIN		COPING		FHR		CD	UCF		UCD		SBP		DBP		LOS
AGE	EDU	OCCU	TOW	REL	MI	TOF	AOR	GAW	AV	DFSL	DSSL	DTSL	APG	BF	AF	BF	AF	BF	AF		BF	AF	BF	AF	BF	AF	BF	AF	
1.3	2.3	3.2	4.1	5.2	6.2	7.3	8.2	1.1	2.2	3.1	4.3	5.1	6.1	7.7	4.25	3.25	7.25	138	140	7.6	3	2.2	45.3	53.4	120	120	77	80	36
1.3	2.4	3.1	4.1	5.4	6.1	7.1	8.2	1.2	2.2	3.2	4.3	5.1	6.1	8	4.6	3	6.5	136	144	6.6	2.9	2.4	55.6	60.3	110	120	76	80	33
1.2	2.4	3.1	4.1	5.3	6.1	7.3	8.2	1.1	2.3	3.1	4.3	5.1	6.2	7.6	4	3.3	5.5	136	140	7	2.4	1.8	50	54.2	115	120	75	80	34
1.3	2.4	3.1	4.1	5.2	6.1	7.3	8.2	1.2	2.2	3.1	4.3	5.1	6.2	7.3	5	3.3	6	132	136	7	3.2	2.4	58.7	66	110	110	77	83	36
1.2	2.3	3.2	4.3	5.2	6.2	7.3	8.2	1.2	2.3	3.2	4.3	5.2	6.1	8	5.25	3	6	136	138	7.6	3	2.4	56	60.4	120	120	80	80	34
1.2	2.3	3.2	4.1	5.1	6.2	7.3	8.2	1.2	2.2	3.1	4.3	5.1	6.1	7.6	4	3.25	6.5	132	136	7	2.6	1.8	57.2	62.4	110	120	76	83	34
1.2	2.4	3.2	4.1	5.2	6.1	7.1	8.2	1.1	2.2	3.2	4.3	5.1	6.2	8	5	3	6	136	138	7	3	2.4	57	60	120	123	76	80	36
1.3	2.3	3.2	4.1	5.1	6.1	7.3	8.2	1.1	2.2	3.2	4.3	5.2	6.2	7	4.3	3	7.3	132	136	7	2.6	2	54	60.2	120	120	77	80	34
1.2	2.3	3.2	4.1	5.2	6.2	7.1	8.1	1.2	2.2	3.1	4.3	5.1	6.1	7.6	4.5	3	6	134	136	8	3.3	2.6	57	62.3	110	120	75	80	34
1.3	2.4	3.1	4.1	5.4	6.1	7.1	8.1	1.2	2.2	3.2	4.3	5.2	6.2	8.3	5.3	2.6	5	134	138	7	3.3	2.6	59	63.2	120	120	77	78.3	36
1.3	2.2	3.2	4.1	5.2	6.2	7.3	8.2	1.1	2.2	3.1	4.3	5.1	6.2	7	4	3	5	132	136	7	3.5	2.6	57	60.4	110	110	76	78	34
1.3	2.3	3.2	4.3	5.3	6.1	7.1	8.1	1.2	2.2	3.1	4.3	5.2	6.1	7.6	4.3	3	5	132	138	7	3.5	3	55.6	60.3	120	117	75	78	34
1.2	2.3	3.2	4.1	5.3	6.2	7.3	8.2	1.2	2.2	3.1	4.3	5.1	6.2	7.3	4.5	3.5	5.3	134	136	8	3.2	2.4	58	66.4	110	120	75	78	36
1.2	2.4	3.1	4.2	5.4	6.1	7.1	8.1	1.1	2.2	3.1	4.3	5.2	6.2	7	4	1.4	4.5	132	136	7	3.4	2.8	57	60	120	120	77	80	36
1.2	2.4	3.1	4.2	5.4	6.2	7.3	8.1	1.2	2.1	3.1	4.3	5.1	6.1	7.6	4.25	2.6	5	134	138	7	3.4	2.4	57.6	68.4	110	120	78	80	34
1.3	2.4	3.1	4.1	5.2	6.2	7.3	8.2	1.1	2.2	3.2	4.3	5.2	6.2	8	4	3	6	134	138	7	2.4	2	54	68.4	120	120	75	77	33
1.2	2.4	3.2	4.1	5.3	6.2	7.3	8.2	1.1	2.2	3.2	4.3	5.2	6.1	7	4	3.3	6	132	134	7	3.3	2.6	55.7	75	110	110	77	80	35
1.2	2.4	3.2	4.1	5.3	6.1	7.3	8.1	1.1	2.1	3.2	4.3	5.1	6.1	7.6	4.23	3	6	138	140	8	3.2	2.6	56.8	66	120	123	78	80	34
1.2	2.3	3.2	4.1	5.4	6.2	7.1	8.2	1.1	2.2	3.1	4.3	5.2	6.1	8	5	3	6	140	142	7	2.4	2	51.25	66.5	110	115	79	80	35
1.2	2.4	3.1	4.3	5.2	6.2	7.1	8.1	1.1	2.1	3.2	4.3	5.2	6.2	7.6	4.3	3	6	136	142	7	3	2.4	56.4	62.3	120	120	77	78	34
1.3	2.4	3.2	4.1	5.3	6.1	7.3	8.1	1.2	2.2	3.1	4.3	5.1	6.1	7	4	3.3	6	136	138	7	3.5	2.4	58.6	64.3	110	110	77	80	34
1.3	2.4	3.2	4.1	5.3	6.2	7.1	8.2	1.2	2.1	3.2	4.3	5.1	6.1	8.3	5.25	3.5	6	138	140	7.3	3	2	55.4	62	116	120	77	78	36
1.2	2.3	3.2	4.2	5.4	6.2	7.3	8.1	1.2	2.2	3.1	4.3	5.2	6.1	7	4	3	5.5	136	140	7	3.2	2.4	53.2	64.2	120	120	76	78	34
1.2	2.3	3.1	4.1	5.3	6.1	7.1	8.2	1.1	2.1	3.1	4.3	5.2	6.1	7.4	4	3	5.5	138	140	7	3	2	55.6	60	110	115	76	80	35
1.3	2.4	3.1	4.1	5.4	6.2	7.1	8.2	1.2	2.2	3.2	4.3	5.1	6.1	8	5	3.5	6	136	140	7	3.3	2.4	57.6	60.2	120	120	77	80	33
1.2	2.4	3.2	4.1	5.5	6.1	7.3	8.1	1.1	2.1	3.1	4.3	5.2	6.1	7.3	4.25	3	5	138	140	7	3	2	54.6	60.3	110	120	80	83	34
1.2	2.2	3.2	4.1	5.4	6.2	7.3	8.1	1.2	2.2	3.2	4.3	5.2	6.2	7.4	4	3	5.25	136	138	7	3.2	2.4	55.5	60.3	120	123	77	80	36
1.3	2.4	3.1	4.1	5.3	6.2	7.1	8.2	1.1	2.2	3.1	4.3	5.1	6.1	8	5	3	6	138	140	7	3.4	2.6	46.2	54	110	115	76	80	36
1.3	2.4	3.1	4.1	5.4	6.1	7.1	8.2	1.1	2.1	3.2	4.3	5.2	6.2	7.3	4	3	6	136	138	7	3	2	51.25	58.3	120	120	76	80	34

APPENDIX XXII

PHOTOGRAPHS DURING THE PEPPERMINTAROMOTHERAPY